

COURSES FOR 21st CENTURY LEARNERS

SAMPLER

# Computing and ICT



Digital  
**Kids**

DIGITAL  
**Teens**



includes sample modules



**Grade 1**  
Digital Kids  
Starter



**Grade 5**  
Digital Kids  
Genius



**Grade 8**  
Digital Teens  
Level 2



binarylogic

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# Computing and ICT are the new literacy

Information and Communications Technologies (ICT) are now part of the educational experience of children and teenagers in most parts of the world. Taught as a separate subject, as well as being embedded within the curriculum, Computing and ICT is increasingly regarded as a new literacy, alongside reading, writing and numeracy.

Digital Kids and Digital Teens are designed to introduce students to the key Computing concepts and ICT applications they need to use in order to acquire that literacy and to help them understand the impact of technology on our daily lives. The curriculum provides a framework in which Computing and ICT competences and practical skills can be developed within an environment that is appropriate for the age of the students.

## 40 years working with technology in schools

### > Serving the learning community

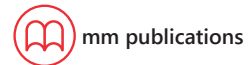
Binary Logic has been working actively with schools, universities and Ministries of Education around the world since 1982 and is well known for the quality of its educational resources and services. The company belongs to the MM Educational Group which was founded in 1974 and since then it has been dedicated to excellence in education. The founders of Binary Logic are educators who decided to incorporate technology early on as they saw the need for innovative ways and methods to enrich students' learning experience. With Belt Study System and ELT SKILLS, we've made English language learning practical, flexible and fun through learning experiences that are interactive and tailored to students' specific needs. In today's everchanging society, we are focusing on the subject of Computing and ICT in schools. Through our innovative curriculum and academic support we have become a worldwide leader.

### > Our experience in school environments

We design complete solutions for real classroom conditions. The students' needs determine the form of our educational material and with our extensive experience in educational technology we are well positioned to meet the challenges in a wide variety of school environments. There are thousands of schools and universities and millions of students in Europe, the Middle East, Asia and Latin America using educational solutions created by Binary Logic.



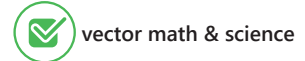
**mm**  
educational group  
mmedugroup.com



mm publications



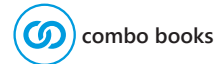
binary logic



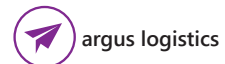
vector math & science



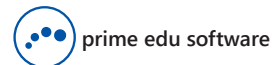
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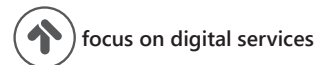
combo books



argus logistics



prime edu software



focus on digital services



abacus fcs



**binarylogic**

binarylogic.net



# Digital Kids

FOR PRIMARY SCHOOLS

6 LEVELS



Student-centered learning through a fun, hands-on approach



Written and designed by educators



Modern educational material that meets various learning styles



Fully graded and designed for schools



Content aligned to student needs in each age group



Activities based on school subjects in each grade



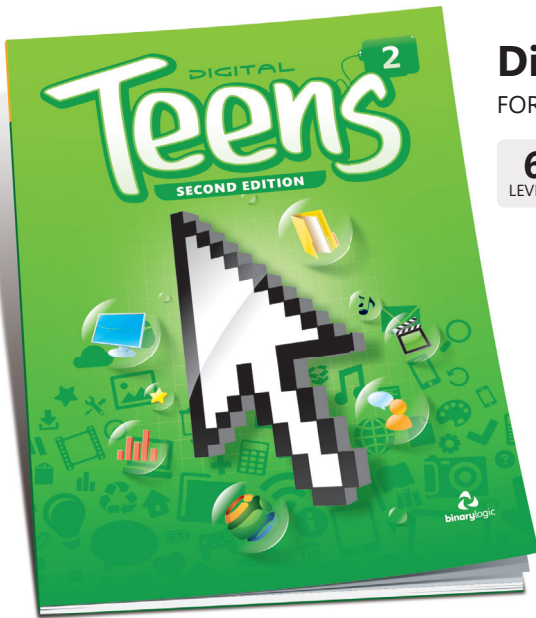
Language in English edition is graded to facilitate non-native speakers



Available in several languages



Coding and robotics available in different grades



# Digital Teens

FOR SECONDARY SCHOOLS

6 LEVELS



## Local education with global standards



Contact us for custom localized editions



# Digital World

FOR KINDERGARTEN

coming soon



# ICT SKILLS

SECOND EDITION

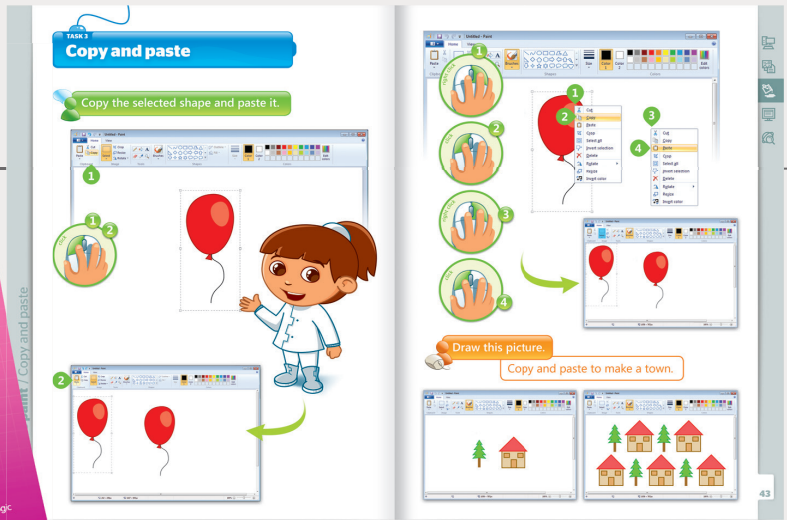
coming soon



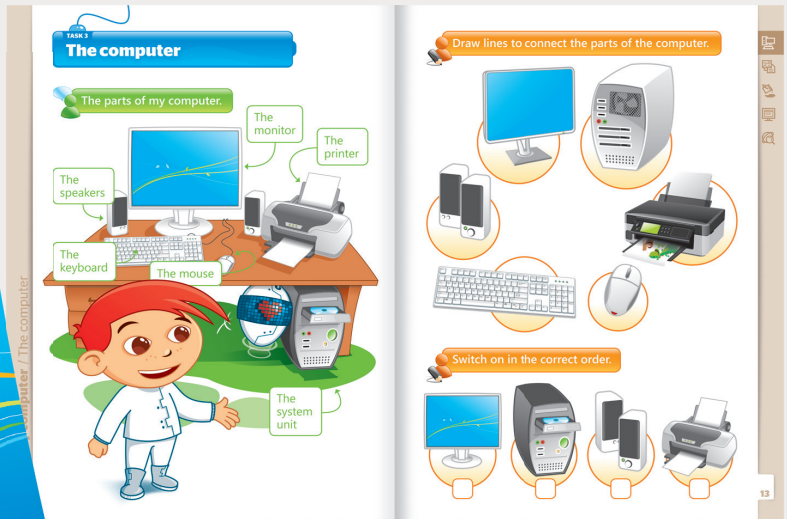
# eSkills

FOR SCHOOLS

12 LEVELS



Grade 1



Grade 2

Digital Kids Starter and Explorer are specifically created for very young learners!



Grade 3



Grade 4



Grade 5



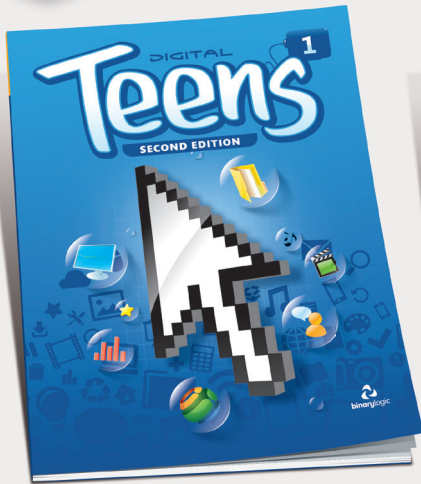
Grade 6





# Digital Teens Grades 7-12

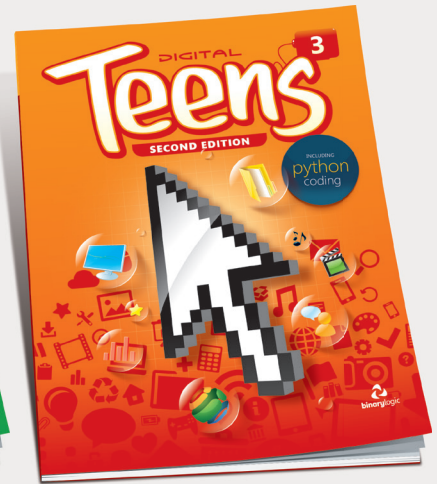
for Secondary schools



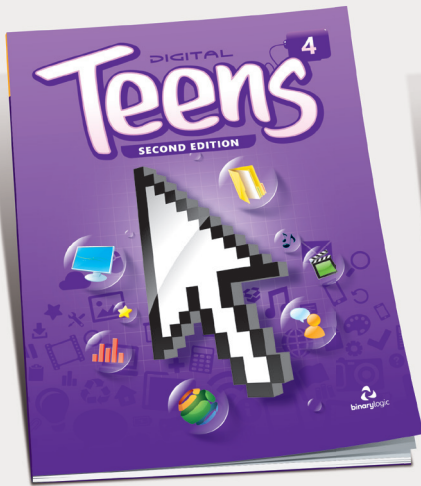
Grade 7



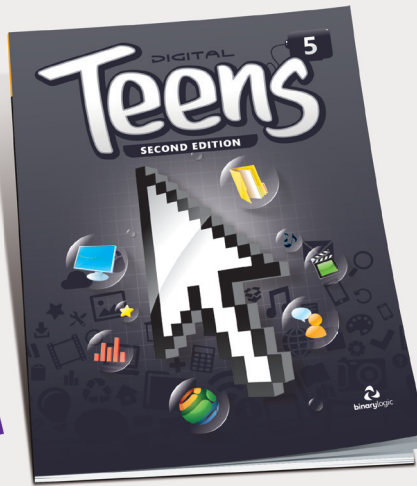
Grade 8



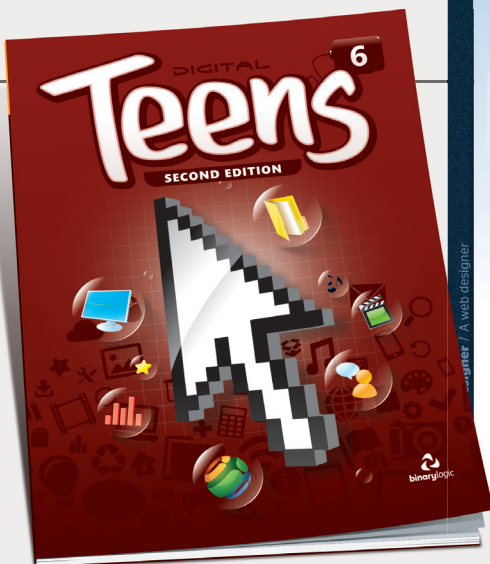
Grade 9



Grade 10



Grade 11



Grade 12

**A web designer**

Another career choice for people who love exploring the web and visit elegant web sites is the Web Designer. This job covers all aspects of creating a website. Upon meeting with clients and assessing their needs, web designers design the layout and help create and maintain the product. However, there are many things a web designer has to take into consideration in order to become successful.

- Following the creation process of a website precisely.
- Using certain techniques that will make the design effective.
- Realizing which features characterize a good web designer.

**The creation process for websites**

When building a website there is a process that most designers use. This process covers all the steps from designing a website to building and putting it online. While all of the steps are important, the amount of time you spend on them is up to you. The diagram below presents these important steps.

- 1 Discuss**
  - Fill in creative brief
  - Set aims, objectives
- 2 Design**
  - Design pages (wireframes and layouts)
  - Get approval
  - Gather the site content
- 3 Develop**
  - Use technologies to build the site (HTML, PHP, CSS, Javascript)
  - Insert content and graphics
  - Testing and debugging
- 4 Deploy**
  - Review
  - Proof reading
  - Approval to go live
- 5 Maintain**
  - Link checking
  - Update content
  - Redesign

**Tips for effective web design**

The proper design of your website is the key that will make your website aesthetically pleasing, easy to use, engaging, and generally effective. So which are the factors that affect the usability of a website? Below are questions to ask yourself based on web design principles which will help you assess your design.

**Assessment**

- Each web page needs to have clear purpose.
- Is the content defined?
- Is the navigation easy?
- How about web pages load time?
- Did you choose the right images?
- Is the text read easily?
- Is the website mobile friendly?
- Is your content placed on web page in the proper way?
- Did you choose the right color scheme?
- Use grid based layouts to arrange content into sections, columns and boxes.
- Use contrasting colors for the text and background. Vibrant colors should be used for buttons and call to actions.
- Include a logical page hierarchy, design clickable buttons and let users find the site they want within three clicks.
- Choose brand images, use infographics, videos and graphics.
- Build the site with a responsive layout or build a dedicated mobile site.
- Use contrasting colors for the text and background. Vibrant colors should be used for buttons and call to actions.

**Characteristics of Good Web Designers**

To become a great web designer, you need certain features to stand out of the rest. These features will help you to find the perfect balance between business and art when working. Here are some of the characteristics a good web designer should have.

- They are great listeners and are able to communicate well with their team.
- They respect customer's ideas.
- They have a clear development process.
- They keep business goals in mind as well as design goals.
- They are well versed in frontend and web technologies in order to achieve specific goals.
- They are not afraid to suggest things that will save you time and money.

Digital Teens 6 is entirely project-based and helps students practice the Computing and ICT skills they acquired in previous years.

# International Standards

**Digital Kids** and **Digital Teens** follow the latest international Computing and ICT teaching standards

- > The series take into consideration the competencies valued in Computing and ICT around the world.
- > The curriculum is mapped against national standards and requirements in a number of countries.
- > The skills learned reflect the performance standards in demand in an international context.



The International Society for Technology in Education (ISTE) completed a Seal of Alignment for Readiness review of Digital Kids, Digital Teens, eSkills and ICT Skills and determined that they provide an effective foundation for successfully acquiring the knowledge and applying the skills described by the ISTE Standards for Students.

## Suitable for international exam preparation

**Extra Online Material**

for example:



# Curriculum Framework

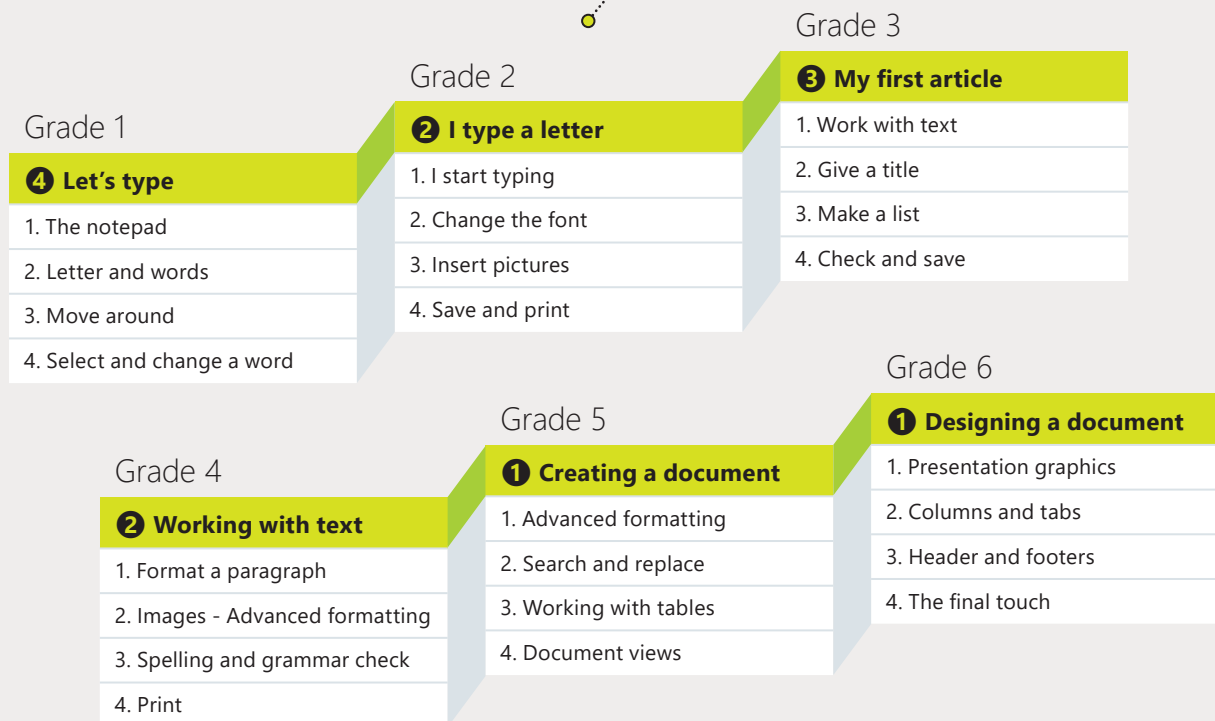
Content curriculum and resources that are aligned with and support digital age learning

- > Designed specifically for young learners and teenagers incorporating the latest developments in pedagogy.
- > Provides interesting real-life scenarios and activities to engage and motivate students.
- > Promotes key skills: collaboration, communication, teamwork, critical thinking, problem-solving and decision-making.



## Spiral Curriculum

Following the spiral curriculum, students repeat the material at different grade levels, each time at a higher level of difficulty and in greater depth.



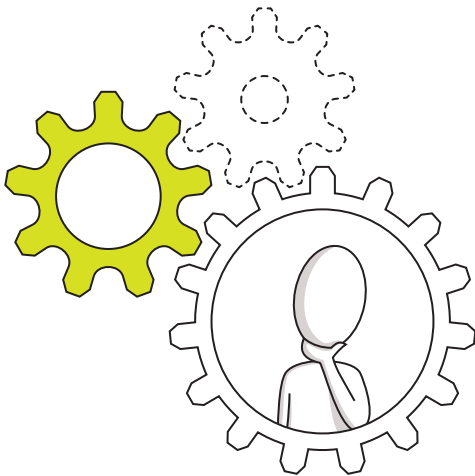


# Modern educational material

## Project-based learning

The **Group Work** section in Digital Kids 1-6 and the **Project** Task in Digital Teens 7-12 engage students through real life activities. Digital Teens 12 is entirely based on projects.

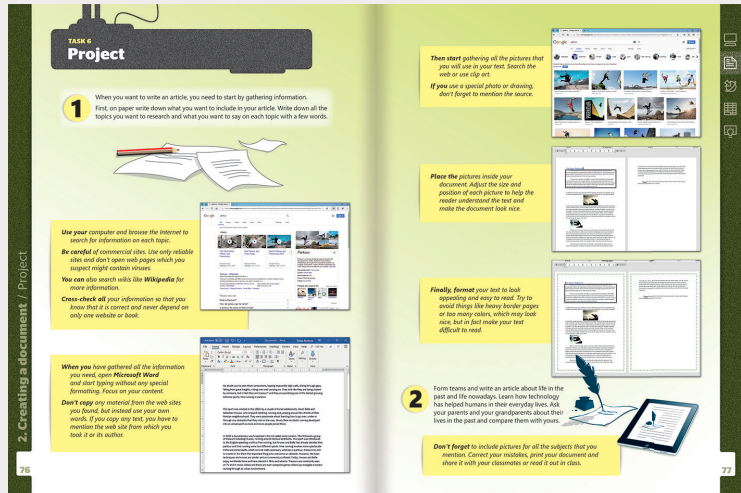
- > Cross-curricular activities based on the school subjects of the same grade
- > Promotes collaboration and group work
- > For the home or the computer lab



Digital Kids Racer



Digital Kids Flyer



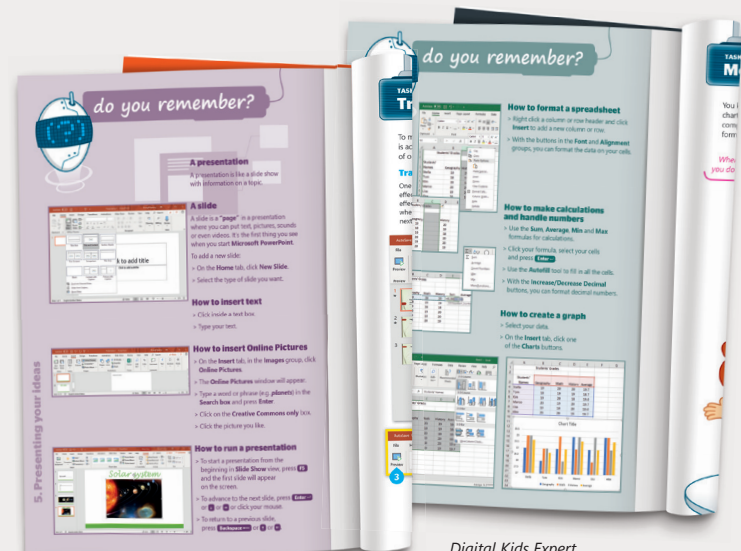
Digital Teens 1

## Flexibility

Digital Kids can be started at grade 1, 2, 3 or 4.

The do you remember? section takes care of important knowledge that the students may have missed.

The Student's Book and the supporting teaching resources accommodate the teacher's teaching style.



Digital Kids Expert

Digital Kids Flyer

# Developing 21st Century Skills

## A complete approach to ICT skills

Digital Literacy is more than the ability to use a computer. Learning to collaborate with others and connect through technology are essential skills.

### Thinking

Creativity, critical thinking, problem-solving, decision-making and learning

### Working

Communication and collaboration

### Living

Digital citizenship, personal and social responsibility

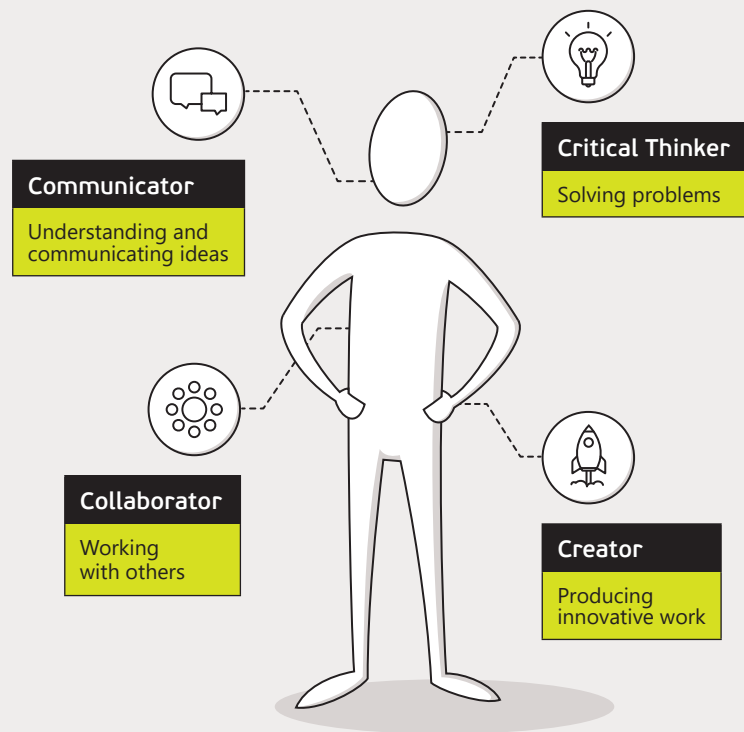
## Learning all modern platforms and tools

Our digital world is not only Windows and Office. As with anything related to technology, new tools are emerging constantly.

Students learn how to work with different kinds of platforms and tools to build real life computer skills. We want them to be able to adapt to change and be equipped to face their future life and work.

Imagine what technology will be like 5 or 10 years from now when your students will be completing their studies.

*Students learn to gather and use information appropriately and ethically and use social tools responsibly and safely.*



Digital Kids Flyer

Digital Kids Genius

Our Computing and ICT curriculum covers a broad range of technologies and tools. The **Other platforms** section at the end of each module shows some of the alternatives available.

# Computational Thinking

Programming helps students understand and apply the fundamental principles and concepts of computing and computer science, including logic, algorithms and data representation.

Our educational material follows a spiral, project-based approach based on the age and school grade of the students.

Programming is introduced at various stages and in various complexity both in primary and secondary grades with different programming tools and languages. Robotics labs are supported with resources for different educational robot kits and virtual platforms.



Short lessons that can match the time that is available in the school curriculum.

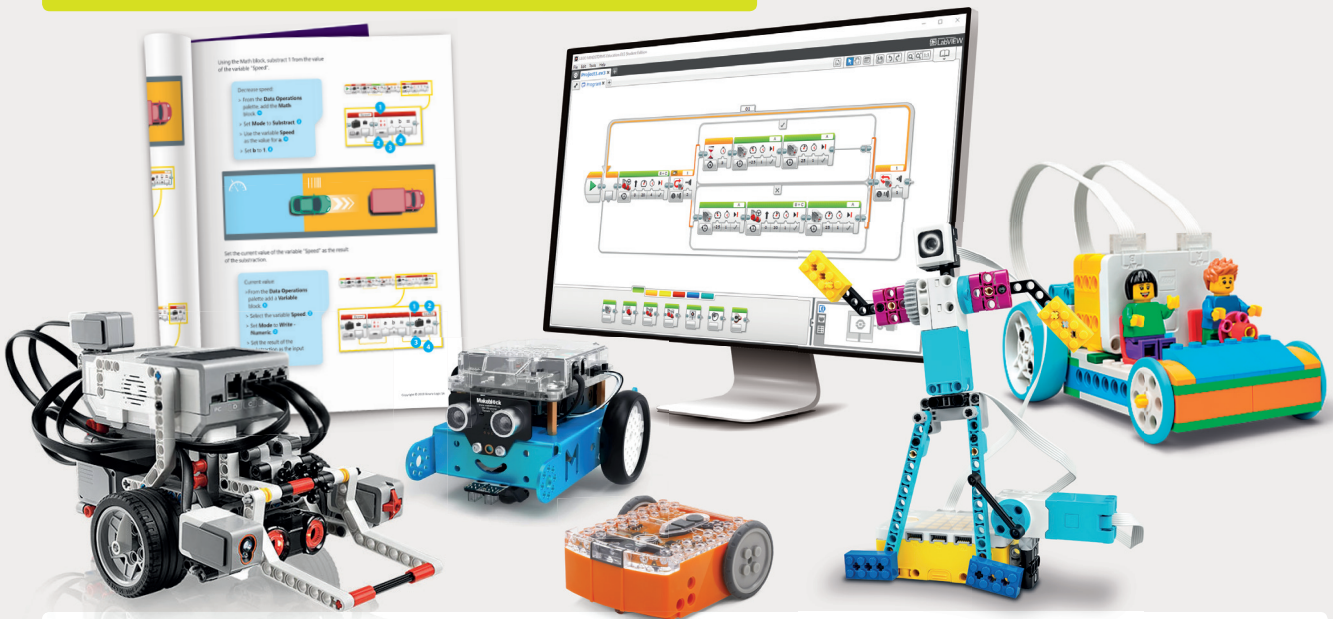
Extra coding and robotics material for all grades.

## Learn how to code in:

Logo, Small Basic, Scratch Jr, Scratch, Microsoft MakeCode, Microbit, Python, Visual Basic, HTML, MIT App Inventor.



Apply coding skills to robotics for the new generation of kids and teenagers.



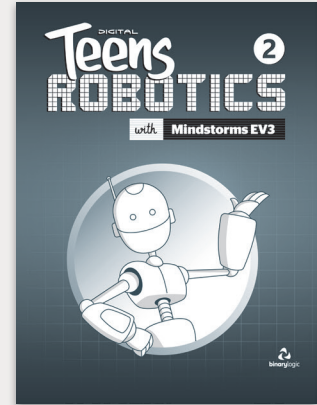
Free virtual robotics platforms support remote and hybrid teaching of robotics.





# Programming - Coding - Robotics

Starting in Grade 1 for both topics, very young students are gradually introduced to the concepts of computational thinking with “unplugged” and technology-based activities. The curriculum continues in all grades up to 12 with advanced Computer Science concepts preparing the students for their college or university studies.

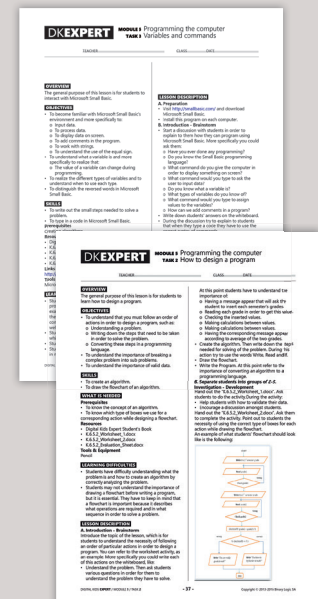


		Grade	1	2	3	4	5	6	7	8	9	10	11	12
Coding / Programming	Unplugged		■											
	Bumblebee Alda		■											
	Digital Kids Go!		■											
	LOGO			■										
	ScratchJr			■	■									
	MIT Scratch					■	■	■	■					
	Microsoft Small BASIC													
	Microsoft Kodu							■				■		
	Python 3													
	IoT: MakeCode & Micro:bit													
	IoT: Python & Raspberry Pi													
	MIT App Inventor													
	HTML5 - CSS3 - PHP - JavaScript													
Visual Basic														
Robotics	Unplugged		■											
	BeeBot		■											
	LEGO® WeDo 2.0 (WeDo Blocks)		■											
	LEGO® WeDo 2.0 (Scratch)		■											
	LEGO® Spike Essential (Icon Blocks)		■											
	LEGO® Spike Essential (Scratch)		■											
	LEGO® Spike Prime (Scratch)		■											
	LEGO® Spike Prime (Python)		■											
	LEGO® EV3 (Mindstorms Blocks)		■											
	LEGO® EV3 (Scratch/Makecode)		■											
	LEGO® EV3 (Python)		■											
	Edison Robot (EdBlocks)		■											
	Edison Robot (EdScratch)		■											
	Edison Robot (EdPython)		■											
	Makeblock mBot (mBlock Scratch)		■											
Makeblock mBot (mBlock Python)		■												
Open Roberta Lab (Virtual/Blocks)		■												
VEXcode VR (Virtual/Blocks)		■												
VEXcode VR (Virtual/Python)		■												

■ Printed books  
 ■ Custom editions  
 ■ Online eBooks  
 ■ Coming soon

## Teacher support

Teachers get full support to be effective in the computer lab, easily, even if they do not have experience in teaching programming.



# Computing and ICT topics

## Our curriculum for schools ensures that all students:

- > Are competent, confident, and creative users of information technology
- > Can critically evaluate and apply information technology (including new and unfamiliar technologies) responsibly, collaboratively and effectively to solve problems
- > Can analyze problems in computational terms, and can write computer programs in order to solve them
- > Can understand and apply the fundamental principles of computer science, including logic, algorithms, data representation, and networks
- > Can critically express the individual, cultural and societal impacts of technology, and know how to stay safe, exploit opportunities and manage risks



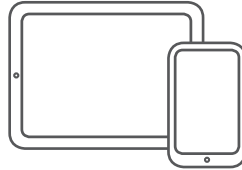
To accomplish these goals, the following topics are covered with an emphasis on skills needed to build a knowledge-based economy:

- > Computer essentials (hardware, peripherals, operating system, file system, security)
- > Online essentials and information literacy (web surfing/searching, email, calendar and contact management, safe computing)
- > Multimedia presentations (editing photos, sound, movie clip creation)
- > Word processing (with mathematical equations, envelopes and labels)
- > Spreadsheets (with charts and data exchange)
- > Presentations (with presentation skills)
- > Databases (working with various tools to organize information)
- > Online communication (blogging, social media, video conferencing)
- > Cloud computing and collaboration (online office suites, sharing documents, online meetings, presentation broadcasting, notes management and sharing, mind mapping)
- > Digital citizenship and data protection (e-safety, privacy, ethics and intellectual property)
- > e-Commerce and digital marketing
- > Computer Science concepts (computer systems and networks)
- > Introduction to programming – Computational thinking
- > Introduction to robotics
- > Designing and developing software applications
- > Web editing (with online apps and later with HTML/CSS tools)
- > Introduction to game development
- > Modern technology skills (networking, storage & backup, simple IT troubleshooting, security, cloud storage)
- > Project planning and diagramming
- > Image editing and 2D animation techniques
- > Video editing and 3D animation techniques

# Student Resources

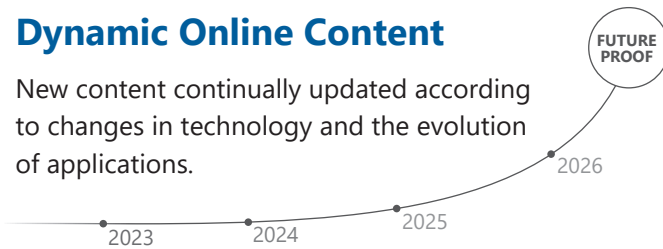
## For any device

- > Works on any device with a web browser such as tablets, smartphones and even smart TVs
- > Supports Windows, MacOSX, iOS, Android, Linux, Chrome Book
- > No need for a DVD drive
- > Accessible anywhere anytime



## Dynamic Online Content

New content continually updated according to changes in technology and the evolution of applications.



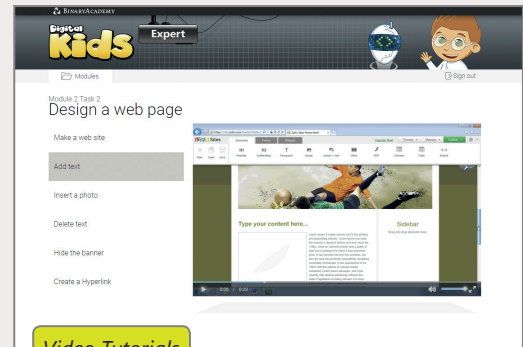
## Online Resources

Individualized access from school or home according to grade:

- > Video tutorials for the applications in the Student's Book and alternative ones
- > Digital resources
- > Animated Stories for very young students
- > Interactive Activities for primary students
- > Extra eBooks for Coding and Robotics
- > Extra eBooks for alternative applications
- > Extra eBooks for international exams
- > Online module tests, certificates and Grades Management Platform (optional)



Module Resources



Video Tutorials



Online Module Tests



Animated Stories - Interactive Activities

Go to **binary-academy.com** to access the Student's Online Resources



# Teacher Academic Support

## Online Resources

- > Teacher's Guide with structured and detailed lesson plans
- > Worksheets with extra activities for the computer lab or homework
- > Self evaluation sheets
- > Practice websites with stable and safe content for children
- > All language editions are available to the teacher

## binary-academy.com

All teacher resources are available in editable DOC and PPT files. Everything is online and updated to accommodate technological advances and teacher feedback.



<http://binary-academy.com/dnld>  
Download sample Teaching Resources

## Grades Management

Each school that adopts our curriculum has access to our Grades Management Platform.

The **supervisor** can prepare the school environment:

- > Create teachers
- > Create classes
- > Assign teachers to classes

The **teacher** can manage the students' tests and grades:

- > Move students to classes
- > Unlock online tests for each class
- > Enter grades for assignments
- > Get reports for tests or grades
- > Print certificates

## Assessment Opportunities

### For each task (Lesson)

- > Hands-on activity (individual performance)
- > Worksheet (individual or group performance)
- > Student self-evaluation questionnaire (student-driven accountability)

### For every module (Unit)

- > Group Work and Projects (project-based learning, collaboration, group performance / presenting results)
- > Module Test (online testing, automated grading, individual performance, online record-keeping) - Optional

### End of course (Level)

- > Final Exam (online testing, automated grading, individual performance, successful completion Certificate available) - Optional

## Professional Development

### Become a confident and effective Computing and ICT teacher.

BinaryAcademy offers Continuing Professional Development (CPD) on how to use our educational material via online and face-to-face training courses.

Our teacher training takes care of the ever-changing challenges in technology and helps you adapt our resources to your teaching style and the specific needs of your school.



inspire  
innovate

# Teacher Academic Support

Resources for Digital Kids and Digital Teens

<http://binary-academy.com/dnld>  
Download sample Teaching Resources



### 5. Programming the computer - Introduction to programming

#### 1. What is a program?

What is the difference between hardware and software? Is the computer program that makes electronic devices work what a program, really?

A computer program is a list of instructions stored in the computer's memory. When you run the program, the list of commands or instructions is used by the computer to perform the tasks that the program has been designed to do.

#### 2. How do people write programs? How can someone write a drawing program or a game?

A program is written by a programmer. It is possible to write a program in a language that the computer can understand, so programmers write a programming language. The computer then translates the program into a language that the computer can understand. This is done by a compiler or interpreter. The program is then stored in the computer's memory and can be run whenever you want.

#### 3. Follow the rules

You have been given the rules for how to write a program. You have to follow these rules when you write a program. Sometimes you don't pay attention to the 'instructions' you follow to get things done, for example, when you get to every evening, you follow a set of rules.

#### 4. The rules in your life

It's not always clear and sometimes you have to decide by yourself what to do. However, computers cannot make decisions by themselves. They follow the instructions that you give them.

#### 5. Algorithm

An algorithm is a step-by-step list of instructions that need to be followed to solve a problem. These instructions must be simple enough so that each step can be done without thinking about it. But these are algorithms in the real world too. For example, a recipe for a cake is an algorithm. If you follow the steps correctly, you will make a specific dish and you will know what to do.

#### 6. Flowchart

A flowchart is a diagram that shows the steps in an algorithm. It uses boxes to represent the steps and arrows to show the order in which they should be followed. Flowcharts are used to describe the steps in a process, such as a recipe, a game, or a computer program.

#### 7. History

The first computer program was written in 1842 by Ada Lovelace. She was a mathematician and a writer. She is considered the first computer programmer. Her work was on the Analytical Engine, a mechanical computer designed by Charles Babbage.

### 5. Analyzing data

#### 1. What is data?

Data is information that can be used to make decisions. It can be numbers, text, or images. Data is often collected from surveys, experiments, or observations. Data is then analyzed to find patterns and trends. This is done using statistical methods. The results of the analysis can be used to make predictions or to understand the causes of certain events.

#### 2. Microsoft Excel

Microsoft Excel is a spreadsheet program. It is used to store and analyze data. It allows you to enter data into cells and perform calculations on it. You can also create charts and graphs to visualize the data. Excel is a powerful tool for data analysis and is used by many businesses and organizations.

#### 3. Learning objectives

- How to make complex calculations.
- How to use the SUM function for faster calculations.
- How to work with logical functions.
- How to avoid mistakes in calculations.
- How to present information with charts.
- How to emphasize information by using bold, italic, and color.
- How to exchange data with other programs.

#### 4. Skills

After this module you will be able to:

- work with percent and percentages.
- use advanced functions.
- use multiple cells.
- use relative and absolute references.
- understand and correct error messages.
- create different types of charts.
- create macros.
- apply conditional formatting to cells.
- import and export data as a CSV file.

#### 5. Tools

- Microsoft Excel
- Apple Numbers
- Google Sheets
- LibreOffice Calc

#### 6. Complex calculations

Complex calculations involve multiple steps and often require the use of formulas. In Excel, you can use formulas to perform calculations on data in your spreadsheet. For example, you can use the SUM function to add up a column of numbers. You can also use logical functions like IF to perform conditional calculations. The results of these calculations can be displayed in the cells of your spreadsheet.

## Lesson Plan

### DKEXPERT MODULE 5 Programming the computer TASK 1 Introduction to programming

#### Self Evaluation Sheet

Module 5 Task 1 Class \_\_\_\_\_ Date \_\_\_\_\_

1. I understand what a program is.

2. I know how to write a program.

3. I know how to use a flowchart.

4. I know how to use an algorithm.

5. I know how to use a compiler.

6. I know how to use an interpreter.

7. I know how to use a debugger.

8. I know how to use a version control system.

9. I know how to use a build system.

10. I know how to use a package manager.

11. I know how to use a container.

12. I know how to use a cloud provider.

13. I know how to use a server.

14. I know how to use a database.

15. I know how to use a network.

16. I know how to use a security system.

17. I know how to use a backup system.

18. I know how to use a disaster recovery plan.

19. I know how to use a monitoring system.

20. I know how to use a logging system.

## Lesson Plan

### DT2 MODULE 5 Analyzing data TASK 1 Complex calculations

#### Self Evaluation Sheet

Module 5 Task 1 Class \_\_\_\_\_ Date \_\_\_\_\_

1. I understand what data is.

2. I know how to collect data.

3. I know how to analyze data.

4. I know how to present data.

5. I know how to use Microsoft Excel.

6. I know how to use Google Sheets.

7. I know how to use Apple Numbers.

8. I know how to use LibreOffice Calc.

9. I know how to use advanced functions.

10. I know how to use logical functions.

11. I know how to use conditional formatting.

12. I know how to use macros.

13. I know how to use conditional formatting.

14. I know how to use macros.

15. I know how to use conditional formatting.

16. I know how to use macros.

17. I know how to use conditional formatting.

18. I know how to use macros.

19. I know how to use conditional formatting.

20. I know how to use macros.

## Activity Worksheets

### Worksheet Level 6 Module 5 Task 1 Class \_\_\_\_\_ Date \_\_\_\_\_

#### The concept of the program

As you know, computers consist of hardware and software. Here are some questions to help you understand the concept of a program.

1. Do you know what a program is?

2. What happens when a program runs?

#### Indicate whether the following sentences are true or false.

1. A computer program is a list of instructions.

2. Computers understand the English language.

3. Programs are written by programmers in a language that computers can understand.

4. There are several programming languages such as Java, Python, and C++.

5. Computers cannot make decisions by themselves.

6. There are many problems in our everyday life that we try to solve and choose other things that are difficult to solve.

7. An algorithm is a sequence of defined actions. We use an algorithm to solve a problem.

8. A flowchart is a sequence of defined actions. We use a flowchart to solve a problem.

9. A flowchart is a sequence of defined actions. We use a flowchart to solve a problem.

10. A flowchart is a sequence of defined actions. We use a flowchart to solve a problem.

11. A flowchart is a sequence of defined actions. We use a flowchart to solve a problem.

12. A flowchart is a sequence of defined actions. We use a flowchart to solve a problem.

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17. A flowchart is a sequence of defined actions. We use a flowchart to solve a problem.

18. A flowchart is a sequence of defined actions. We use a flowchart to solve a problem.

19. A flowchart is a sequence of defined actions. We use a flowchart to solve a problem.

20. A flowchart is a sequence of defined actions. We use a flowchart to solve a problem.

## Activity Worksheets

### Worksheet Level 2 Module 5 Task 1 Class \_\_\_\_\_ Date \_\_\_\_\_

#### Let's work with spreadsheets

As you know, the main reason people use spreadsheets is to organize the data they collect. Spreadsheets are used to store and analyze data. They are also used to create charts and graphs. Spreadsheets are a powerful tool for data analysis and are used by many businesses and organizations.

1. The radius of the round square is 50 m.

2. The radius is 155,000.

3. You can choose five different items that your square can contain.

4. Below is a table of the construction costs which will help calculate the total building cost.

Item	Area (m <sup>2</sup> )	Percentage	Value
Grass	25	20%	5000
Fountains	205	15%	30750
Trees	155	10%	23250
Flowers	0,5	5%	775
Playground	500	5%	7750
Other	10	5%	1550
<b>Total</b>	<b>900</b>	<b>100%</b>	<b>45000</b>

Now, you have to create a table to analyze this data making calculations. Excel offers many functions. Use the following table to help you.

1. Open Microsoft Excel and create a table similar to the one on the right. More specifically:

- The "Area" column depicts the surface area which you want to cover with each item in the square.
- The "Percentage" column depicts what part of the area.
- The "Value" column depicts the construction cost of each item.
- In this table cell B7 must contain the total area of the square.

2. Assuming that the shape of the square is a circle, just fill in the following calculations calculate the area correctly.

1.  $D = 2 \cdot R$    $C = \pi \cdot R^2$

2.  $C = 8 \cdot R^2$    $C = 8 \cdot R^2 \cdot \pi$

3.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

4.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

5.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

6.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

7.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

8.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

9.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

10.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

11.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

12.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

13.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

14.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

15.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

16.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

17.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

18.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

19.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

20.  $C = 8 \cdot R^2 \cdot \pi$    $C = 8 \cdot R^2 \cdot \pi$

# Effective Teaching Methodology

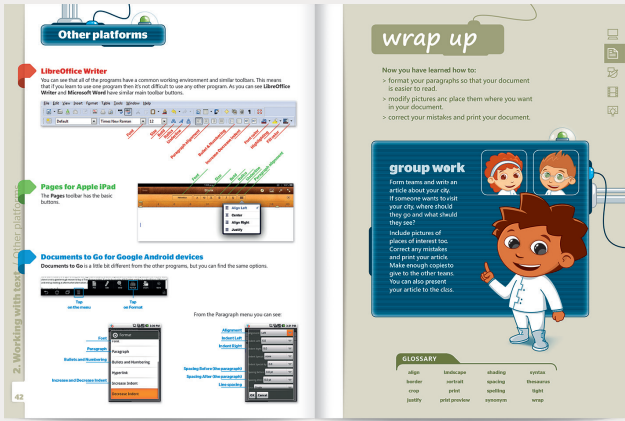
✓ Let's have a look inside **Digital Kids Flyer** (Grade 4)



- Task 1
- Task 2
- Task 3
- Task 4

## Student's Book

- Module 1
- Module 2
- Module 3
- Module 4
- Module 5



Other Platforms section

Group Work Activity & Vocabulary

## Student's Online Resources



Online Module Test

Student's Material

Teacher's Material

Downloadable Content

Modifiable Content

# Student's Book

**do you remember?**

**Format a paragraph**

In Microsoft Word, most of the formatting paragraph options are on the **Home** tab, in the **Paragraph** group.

**How can you create, save and open a document?**

- To create a document, click **New** in the **File** group, click **Blank Document** and then click **Create**.
- To save a document, on the **File** tab, click **Save**. As first, you need to save the document. Give your document a name. Click **Save**.
- To open a document, on the **File** tab, click **Open**. Find the document where you have saved your document. Click **Open**.

**What can you do with the options in the Font group?**

- Change the font.
- Change the Size of the font.
- Make the font Bold.
- Make the font Italic.
- Underline a word or text.
- Change the color of the font.
- Highlight a word or text.

**How can you make lists?**

Select the text that you want to turn into a list.

- On the **Home** tab, in the **Paragraph** group, click the **Bulleted List** button to make a bulleted list.
- On the **Home** tab, in the **Paragraph** group, click the **Numbering List** button to make a numbered list.

**Print**

It's nice to see your article on the screen but sometimes you need to print on paper. And print **Ctrl + P**. The printer will print your document in a few seconds.

**If you need more options when printing:**

- On the **File** tab, click **Print** or press **Ctrl + P**.
- On the right side of the screen, you can see the **Print Preview**. From your document will appear on paper.
- On the left side of the screen, you can change the different **Print Settings**.

**hands on!**

Print the documents you have created in this module in grayscale and color.

You have a document that is 10 pages long. Write how many pages of paper you will need if you choose to print the following pages:

- All pages
- 2, 3, 5
- 2, 3, 5, 7
- 2, 3, 5, 7
- Current page

Do you Remember section

Theory

Hands On Activity

# Student's Online Resources

**Which is the most popular sport in your country?**

a) Ping – Pong  
b) Ice hockey  
c) Cricket

Hello! My name's Nikita Lee and I'm from China. Ping Pong is one of the most popular sports in my country. You play the game on a table with a net. Two or four players hit a ball back and forth with paddles. No matter which that it's one of the most boring sports in the world, but I think that it's a lot of fun.

Hello! My name's Natascha and I'm from Russia. The most popular sport in my country is Ice Hockey. You play this sport in a hockey rink. There are six players on each team and they all wear skates, gloves, helmets and icepads. They use sticks to play the game. I think that it's the most exciting sport in the world.

Hello! My name's Nicole and I'm from Australia. The most popular sport in my country is cricket. In a cricket match there are two teams. Each team has eleven players.

They wear gloves, helmets and pads and they use a bat to hit the ball. I think cricket is the most interesting sport of all.

**The world also means "behavior"**

The word also means "behavior" and means the program's behavior.

These two programs have the same audience. Can you spot the differences? (Which one do you prefer?)

**Flyer**

**Format a paragraph**

Apply a border

Apply a shading

Digital Documents for Practice

Video Tutorials

eBooks

Animated Stories

Interactive Activities

# Teacher's Online Resources

**DKFLYER** **Module 2** Working with text  
**Task 1** Format a paragraph

**Objectives:**

- Understand the different ways in which a paragraph can be aligned.
- Align text to the left, right or center of a paragraph.
- Align text to the top, bottom, middle or right margin of a paragraph.
- Align text to the top, bottom, middle or right margin of a paragraph.
- Align text to the top, bottom, middle or right margin of a paragraph.

**Activities:**

- Align a paragraph to the left, right or center of a page.
- To increase and decrease indent and use the **Tab** key.
- To change paragraphs, **IT** lines and paragraphs.
- To change paragraphs.

**Checklist of Objectives:**

- Basic formatting of a text.
- Align and indent a line.
- Align text to the left, right or center of a page.
- Align text to the top, bottom, middle or right margin of a paragraph.
- Align text to the top, bottom, middle or right margin of a paragraph.
- Align text to the top, bottom, middle or right margin of a paragraph.

**Explode Word in order**

Click the Red eye button

Teacher's Guide with Lesson Plans

Activity Worksheets

Self Evaluation Sheets

Video Tutorials





# Scope & Sequence

what students will learn

## Digital Kids Starter (Grade 1)

### 1 My computer

1. Dinosaurs and computers
2. They are every where
3. The computer
4. Click and type

### 2 Let's start

1. My desktop
2. Start a program
3. Text and pictures
4. My work space

### 3 Let's paint

1. Free drawing
2. Make shapes
3. Copy and paste
4. Save my picture

### 4 Let's type

1. The notepad
2. Letter and words
3. Move around
4. Select and change a word

### 5 Let's surf

1. The Internet
2. Communicate
3. Have fun
4. Learn

## Digital Kids Explorer (Grade 2)

### 1 I use the computer

1. My computer
2. My desktop
3. Mouse and keyboard
4. My work space

### 2 I type a letter

1. I start typing
2. Change the font
3. Insert pictures
4. Save and print

### 3 I visit the world

1. How to surf
2. The web page
3. Educational games
4. Copy from the web

### 4 I have friends

1. My email
2. Send a message
3. Read and reply
4. Email rules

### 5 I give commands

1. Logo and the turtle
2. Move the turtle
3. Draw a shape
4. Let's have fun!

## Digital Kids Racer (Grade 3)

### 1 My devices

1. Store
2. Print
3. Capture
4. Interact

### 2 My files

1. What is a file?
2. Organize my folders
3. Search and find
4. Start a program

### 3 My first article

1. Work with text
2. Give a title
3. Make a list
4. Check and save

### 4 My wired world

1. Search for anything
2. Knowledge treasure sites
3. Be polite
4. Safety online

### 5 My first presentation

1. All about slides
2. Insert text
3. Insert pictures
4. Presenting is cool

Digital Kids  
Flyer (Grade 4)

Digital Kids  
Genious (Grade 5)

Digital Kids  
Expert (Grade 6)

**1 Learning the basics**

1. My desktop
2. Files and folders
3. Control panel
4. Protect my computer

**2 Working with text**

1. Format a paragraph
2. Images - Advanced formatting
3. Spelling and grammar check
4. Print

**3 Communicating online**

1. My friends
2. Forward an email
3. Send a file
4. Email tips

**4 Working with media**

1. Create a sound clip
2. View images and videos
3. Fix a photo
4. Apply photo effects

**5 Presenting your ideas**

1. Transitions and animations
2. Set the timing
3. Insert a sound or video clip
4. Transfer data across apps

**6 Working with numbers**

1. What is a spreadsheet?
2. Row - Column - Cell
3. Insert numbers and text
4. Simple calculations

**1 Creating a document**

1. Advanced formatting
2. Search and replace
3. Working with tables
4. Document views

**2 Producing multimedia**

1. Use capture devices
2. Create and edit a sound clip
3. Find and use multimedia material
4. Create an animated story

**3 Using communication tools**

1. Internet and the web
2. Communication tools
3. Sharing your moments
4. Be secure online

**4 Sharing your ideas**

1. Blogging
2. Social media
3. Safety rules
4. Intellectual property

**5 Formatting numbers**

1. Format a cell
2. Make calculations
3. Create a graph
4. Print a sheet

**6 Collecting information**

1. Gather data
2. Introduction to databases
3. Create a database
4. Sort and print

**1 Designing a document**

1. Presentation graphics
2. Columns and tabs
3. Header and footers
4. The final touch

**2 Building a website**

1. What is a web page
2. Design a web page
3. Add more pages
4. Publishing the web page

**3 Analyzing data**

1. More calculations
2. Functions
3. References
4. More charts

**4 Handling data**

1. Structured information
2. Use a data entry form
3. Filter the data
4. Create a report





**5 Programming the computer**

1. Introduction to programming
2. How to design a program
3. Variables and commands
4. More programming

**6 Let's have fun**

1. Fun with shapes
2. What is datalogging
3. Robots!
4. Create your computer game



Grade	Syllabus	Tools
1	<ul style="list-style-type: none"> <li>&gt; Solve a problem</li> <li>&gt; Follow instructions</li> <li>&gt; Sequence</li> <li>&gt; Find the error</li> <li>&gt; Storytelling</li> </ul> 	<ul style="list-style-type: none"> <li>&gt; Digital Kids Go!</li> </ul>
2	<ul style="list-style-type: none"> <li>&gt; ScratchJr programming environment</li> <li>&gt; Drawing</li> <li>&gt; Display a message</li> <li>&gt; Control Blocks</li> </ul>  	<ul style="list-style-type: none"> <li>&gt; MIT ScratchJr</li> <li>&gt; LOGO</li> </ul>
3	<ul style="list-style-type: none"> <li>&gt; Flow control</li> <li>&gt; Loop (Repeat)</li> <li>&gt; Simple events (Key Press)</li> <li>&gt; Input/Output</li> </ul> 	<ul style="list-style-type: none"> <li>&gt; MIT ScratchJr</li> </ul>

**Grade****Syllabus****Tools****4**

- > Scratch programming environment
- > Display information
- > Sound effects
- > Use Pen to draw shapes

- > MIT Scratch 3

**Grade****Syllabus****Tools****5**

- > Design a program
- > Flowchart
- > Sensing Blocks
- > Flow control
- > Conditional operators
- > Selections/Decisions (IF)
- > Events (Key Press)
- > Movement Blocks









- > MIT Scratch 3

**Grade****Syllabus****Tools****6**

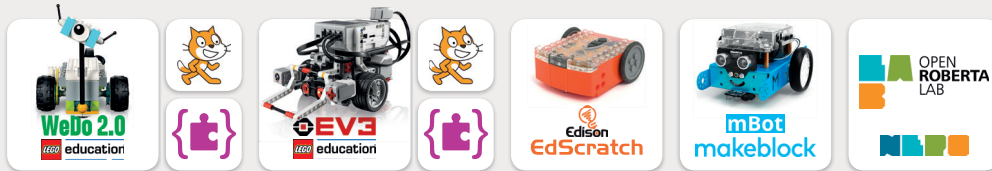
- > Sensing Block
- > Loop (Repeat Until)
- > Variables
- > Calculations
- > Complex decisions (If else)
- > Conditional operators

- > MIT Scratch 3
- > Microsoft Small BASIC

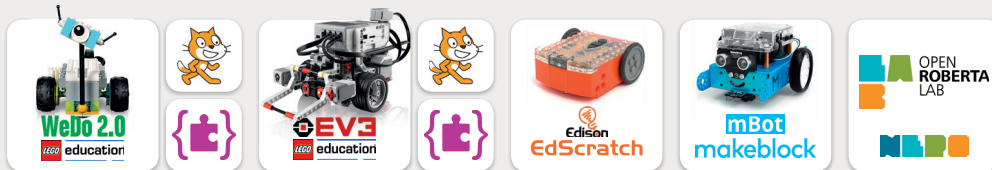


Grade	Syllabus	Tools
1	<ul style="list-style-type: none"> <li>&gt; Solve a problem</li> <li>&gt; Follow instructions</li> <li>&gt; Sequence</li> <li>&gt; Find the error</li> <li>&gt; Storytelling</li> </ul>  <p>Bee-Bot</p>	<ul style="list-style-type: none"> <li>&gt; Bee-Bot Robot</li> </ul>
2	<ul style="list-style-type: none"> <li>&gt; Draw shapes</li> <li>&gt; Assembling simple robot model</li> <li>&gt; Motors/Power</li> <li>&gt; Simple calculations</li> </ul>    	<ul style="list-style-type: none"> <li>&gt; LEGO® WeDo 2.0</li> <li>&gt; Edison Robot (EdScratch)</li> <li>&gt; Makeblock mBot (with remote control)</li> </ul>
3	<ul style="list-style-type: none"> <li>&gt; Flow control</li> <li>&gt; Loop (Repeat)</li> <li>&gt; Simple events (Key Press)</li> <li>&gt; Input/Output</li> <li>&gt; Sensors/Information Processing (Motion Sensor, Tilt Sensor)</li> <li>&gt; Gears and other mechanical systems</li> </ul>   	<ul style="list-style-type: none"> <li>&gt; LEGO® WeDo 2.0</li> <li>&gt; Edison Robot (EdScratch)</li> <li>&gt; Makeblock mBot (Scratch)</li> </ul>

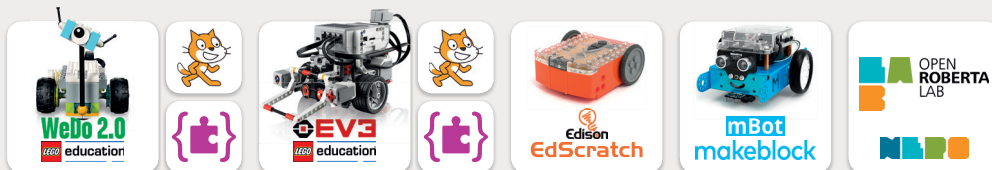
Grade	Syllabus	Tools
4	<ul style="list-style-type: none"> <li>&gt; Types of robots</li> <li>&gt; Positive and negative impacts of robotics</li> <li>&gt; Autonomous driving</li> <li>&gt; Scratch programming environment</li> <li>&gt; Loop (Repeat Until, Forever)</li> <li>&gt; EV3 Brick</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Movement Blocks</li> <li>&gt; Selections/Decisions (IF)</li> <li>&gt; Conditional operators (Comparisons)</li> <li>&gt; Test &amp; debug</li> <li>&gt; Open Roberta Lab environment</li> <li>&gt; Gears and other mechanical systems</li> </ul>



Grade	Syllabus	Tools
5	<ul style="list-style-type: none"> <li>&gt; EV3 Mindstorms programming environment</li> <li>&gt; EV3 Brick settings</li> <li>&gt; EV3 connections</li> <li>&gt; Creating shapes with precision movement</li> </ul>	<ul style="list-style-type: none"> <li>&gt; LEGO® WeDo 2.0 (Scratch/Makecode)</li> <li>&gt; LEGO® EV3 (Mindstorms programming environment)</li> <li>&gt; LEGO® EV3 (Scratch/Makecode)</li> <li>&gt; Edison Robot (EdScratch)</li> <li>&gt; Makeblock mBot (Scratch)</li> <li>&gt; Open Roberta Lab (Virtual platform)</li> </ul>



Grade	Syllabus	Tools
6	<ul style="list-style-type: none"> <li>&gt; Complex decisions (IF Else)</li> <li>&gt; Sensing Blocks</li> <li>&gt; Control movements of two robots</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Variables</li> <li>&gt; More calculations</li> <li>&gt; Coordinates</li> <li>&gt; Moving autonomously</li> </ul>





# Scope & Sequence

what students will learn

## Digital Teens 1 (Grade 7)

### 1 Learning the basics

- Computers and devices
- The operating system
- Files and folders
- Basic settings
- Hints and tips
- Project

### 2 Creating a document

- Formatting text
- Advanced font formatting
- Images and graphics
- Working with tables
- Check and print
- Project

### 3 Getting online

- Surfing the web
- Use online resources
- Send and receive email
- Organizing email
- Be safe online
- Project

### 4 Working with numbers

- Rows and columns
- Advanced formatting
- Simple calculations
- Logical functions
- Create a chart
- Project

### 5 Presenting your ideas

- Slides, text and images
- Transitions and animations
- Sound and video
- Charts and graphs
- Tips and tricks
- Project

## Digital Teens 2 (Grade 8)

### 1 Collecting information

- Introduction to databases
- Filter and sort
- Keys and relationships
- Contact management
- Lab data collection
- Project

### 2 Designing a document

- Tabs and columns
- Headers and footers
- HTML and PDF
- Mail merge
- Advanced topics
- Project

### 3 Multimedia presentations

- Storyboarding
- Capture and edit multimedia
- Record your voice
- Fix photos and add effects
- Create an animated story
- Project

### 4 Communicating online

- Networking basics
- What is a blog?
- Social Media
- Communication tools
- Digital citizenship
- Project

### 5 Analyzing data

- Complex calculations
- Functions
- References
- Advanced charts
- Import and export data
- Project

## Digital Teens 3 (Grade 9)

### 1 Handling databases

- Structured information
- Data entry forms
- Queries
- Reports
- Import and export data
- Project

### 2 Documents for a purpose

- Text documents
- Spreadsheets
- Presentations
- Project 1 – Leaflet
- Project 2 – Labels
- Project 3 – Market research

### 3 Programming the computer

- What is a program?
- Variables and commands
- Conditions and branching
- Functions and subroutines
- Have fun!
- Project

### 4 Deep diving

- Advanced networking
- Servers and storage
- I'm an IT administrator
- Data and network security
- Cloud storage
- Project

### 5 ICT is fun

- Design your website
- Publish your website
- Design your own game
- Add gameplay interactions
- Science projects
- Project

## Digital Teens 4 (Grade 10)

### 1 Computer science basics

Data manipulation  
Computer architecture  
Operating systems  
Network fundamentals  
Computers in society  
Project

### 2 Working online

Working with documents online  
Online meetings  
Presentation broadcasting  
Notes management  
Mind mapping  
Project

### 3 Advanced imaging

Image essentials  
Layers  
Image adjustments  
Retouch and enhance  
2D animation creation  
Project

### 4 Desktop Publishing

From etching to DTP  
Basic tools  
Single-page design  
Multi-page document I  
Multi-page document II  
Project

### 5 Developing applications

Programming concepts  
Decisions and repetition  
Database management  
Classes, objects and inheritance  
User interface and testing  
Project

## Digital Teens 5 (Grade 11)

### 1 Building a website

Design a web page  
Web hosting and SEO  
HTML and CSS  
Insert content  
Web forms  
Project

### 2 Graphics design

Vector graphics  
Coloring and shaping  
Adding text and reshaping  
Making curves  
More design tools  
Project

### 3 Interactive applications

Getting started  
Designing the UI  
Animating objects  
Adding interactivity  
Working with sound and video  
Project

### 4 Advanced multimedia

Video shooting  
Video editing  
Visual effects  
The final touch  
3D animation  
Project

### 5 Project management

What is a project?  
Organizing tasks  
Create a Gantt chart  
Create a diagram  
Changing colors and fonts  
Project

## Digital Teens 6 (Grade 12)

### 1 Teacher

The gradebook  
A school event  
A topic presentation  
A school trip  
The school newspaper  
The school blog

### 2 Sales manager

Make a proposal  
Daily report  
Sales notebook  
Sales reports  
A new product  
A customer database

### 3 Digital marketer

Plan your marketing strategy  
Email marketing campaign  
A brand blog  
Create blog content  
Blog and social media  
Social media audit




### 4 Web designer





Newsletter template  
Code an email newsletter  
Design a one column website  
Code a one column website  
Design a two column website  
Build a two column website






### 5 Application developer

Organize the data  
Handling a database  
Start building your app  
Images and videos  
Add a new record  
Search with a filter



Grade	Syllabus	Tools	
7	<ul style="list-style-type: none"> <li>&gt; Solve a problem</li> <li>&gt; Flowchart</li> <li>&gt; Sequence (commands)</li> <li>&gt; Coordinates</li> <li>&gt; Display information (Print)</li> <li>&gt; Get information (Input)</li> <li>&gt; Events (Wait Until)</li> <li>&gt; Complex decisions (If...else)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Operators</li> <li>&gt; Logical operators (AND, OR, NOT)</li> <li>&gt; Variables (naming)</li> <li>&gt; Numbers/Strings</li> <li>&gt; Constants</li> <li>&gt; Calculations</li> <li>&gt; Comments</li> <li>&gt; Use code to control an IoT device</li> </ul>	<ul style="list-style-type: none"> <li>&gt; MIT Scratch 3</li> <li>&gt; Python 3 (IDLE)</li> <li>&gt; MakeCode &amp; Micro:bit</li> </ul>
	   		

Grade	Syllabus	Tools	
8	<ul style="list-style-type: none"> <li>&gt; Visual Studio Code programming environment</li> <li>&gt; Conditional operators</li> <li>&gt; Simple decisions (If)</li> <li>&gt; Complex decisions (If...elif, If...elif ...else, nested if)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Loop (For, range(), while, infinite loop)</li> <li>&gt; Exit loop (Break)</li> <li>&gt; Use code to control an IoT device</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Python 3 (Visual Studio Code)</li> <li>&gt; MakeCode &amp; Micro:bit</li> </ul>
	   		

Grade	Syllabus	Tools	
9	<ul style="list-style-type: none"> <li>&gt; Modular programming</li> <li>&gt; Functions (parameters, arguments, Return)</li> <li>&gt; Local and global variables</li> <li>&gt; Data structures</li> </ul>	<ul style="list-style-type: none"> <li>(Lists, tuples)</li> <li>&gt; Draw shapes with code (tkinter library)</li> <li>&gt; Events (Key press, mouse click)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Python 3 (Visual Studio Code)</li> <li>&gt; MIT App Inventor</li> </ul>
	    		

**Grade****Syllabus****Tools**

# 10

- > Loop (Nested loops)
- > Drawing/graphing
- > Data structures (Nested lists)
- > Functions (len, sum, max, min)
- > Mobile app development
- > Mobile user interface design
- > Create a website with Visual Studio Code
- > HTML grammar and syntax

- > HTML elements
- > Database management
- > Classes, objects & inheritance
- > User interface and testing Python 3 (Visual Studio Code)
- > Python 3 with Raspberry Pi
- > MIT App Inventor
- > HTML5 (Visual Studio Code)
- > VisualBasic.NET

- > MIT Scratch 3
- > Python 3 (IDLE)
- > MakeCode & Micro:bit
- > App Inv
- > HTML 5
- > visual basic
- > rasberry

**Grade****Syllabus****Tools**

# 11

- > Dictionaries
- > Files (read/write sequential)
- > Recursion
- > Global variables
- > IoT – GPIO programming
- > Mobile application development with accessibility standards
- > Design a user interface for people with special needs

- > Create a mobile app prototype
- > Test mobile app for accessibility
- > Use HTML and CSS tags to format a web page
- > Responsive web pages with CSS Python 3 (Visual Studio Code)
- > Python 3 on Raspberry Pi
- > MIT App Inventor
- > HTML5 - CSS3 (Visual Studio Code)

- > Python 3 (Visual Studio Code)
- > MIT App Inventor
- > HTML5, CSS3 (Visual Studio Code)

**Grade****Syllabus****Tools**






















# 12

- > Algorithms
- > Bubble, Selection & Insertion Sort
- > Linear & Binary Search
- > Interactive elements with JavaScript
- > Server-side Form processing

- > Web server & RDBMS Python 3 (Visual Studio Code)
- > HTML5 - CSS3 - JavaScript (Visual Studio Code)
- > Node.js

- > Python 3 (Visual Studio Code)
- > HTML5, CSS3, Javascript (Visual Studio Code)
- > note.js



Grade	Syllabus	Tools	
7	<ul style="list-style-type: none"> <li>&gt; Follow instructions</li> <li>&gt; Assembling a robot model (Driving Base, Loader)</li> <li>&gt; Data Wires</li> <li>&gt; Variables</li> <li>&gt; Calculations (Comparison symbols, arithmetic operations)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Strings</li> <li>&gt; Display messages</li> <li>&gt; Complex decisions (IF Else)</li> <li>&gt; Loop (Forever)</li> <li>&gt; Sensors/Information Processing (Ultrasonic Sensor)</li> <li>&gt; Motors (Large/Medium)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; LEGO® EV3 (Mindstorms programming environment)</li> <li>&gt; LEGO® EV3 (Scratch/Makecode)</li> <li>&gt; Edison Robot (EdPython)</li> <li>&gt; Makeblock mBot (Python)</li> <li>&gt; VEXcode VR (Scratch)</li> <li>&gt; Open Roberta Lab (Virtual platform)</li> </ul>
	      		
8	<ul style="list-style-type: none"> <li>&gt; Conditional operators (Logic operators)</li> <li>&gt; Loop (Until)</li> <li>&gt; Sensors (Touch /Color)</li> <li>&gt; Flow Control</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Acceleration</li> <li>&gt; Deceleration</li> <li>&gt; Cruise control</li> </ul>	<ul style="list-style-type: none"> <li>&gt; LEGO® EV3 (Mindstorms programming environment)</li> <li>&gt; LEGO® EV3 (Scratch/Makecode)</li> <li>&gt; Edison Robot (EdPython)</li> <li>&gt; Makeblock mBot (Python)</li> <li>&gt; VEXcode VR (Scratch)</li> </ul>
	      		
9	<ul style="list-style-type: none"> <li>&gt; Modular programming</li> <li>&gt; Code reuse</li> <li>&gt; Code organisation</li> <li>&gt; Modules (My Block)</li> </ul>		<ul style="list-style-type: none"> <li>&gt; LEGO® EV3 (Mindstorms programming environment)</li> <li>&gt; LEGO® EV3 (Scratch/Makecode)</li> <li>&gt; Edison Robot (EdPython)</li> <li>&gt; Makeblock mBot (Python)</li> </ul>
	      		

**Grade****Syllabus****Tools**

# 10

- > Data Logging
- > EV3 sensors for data collection
- > Export EV3 data file to Excel
- > Import EV3 data file from Excel
- > Display data diagrams

- > LEGO® EV3 (Mindstorms programming environment)
- > LEGO® EV3 (Scratch/Makecode)

**Grade****Syllabus****Tools**

# 11

- > Use Python to control a robot
- > Use Python to draw shapes
- > Use Python to detects obstacles
- > Design a robot model with a mechanical arm and lifting system (Prototype)
- > Visual Studio Code programming environment for LEGO® EV3
- > ev3dev Visual Studio Code extension

- > LEGO® EV3 (MicroPython)

**Grade****Syllabus****Tools**

# 12

- > Assembling a robotic arm
- > Gears and other mechanical systems
- > 3D Coordinates
- > Robotic Arm Calibration
- > Fundamentals of Kinematics
- > Operating a robotic arm with Python

- > LEGO® EV3 (MicroPython)





Welcome to  
**Digital Kids Starter**

Key features and sample pages



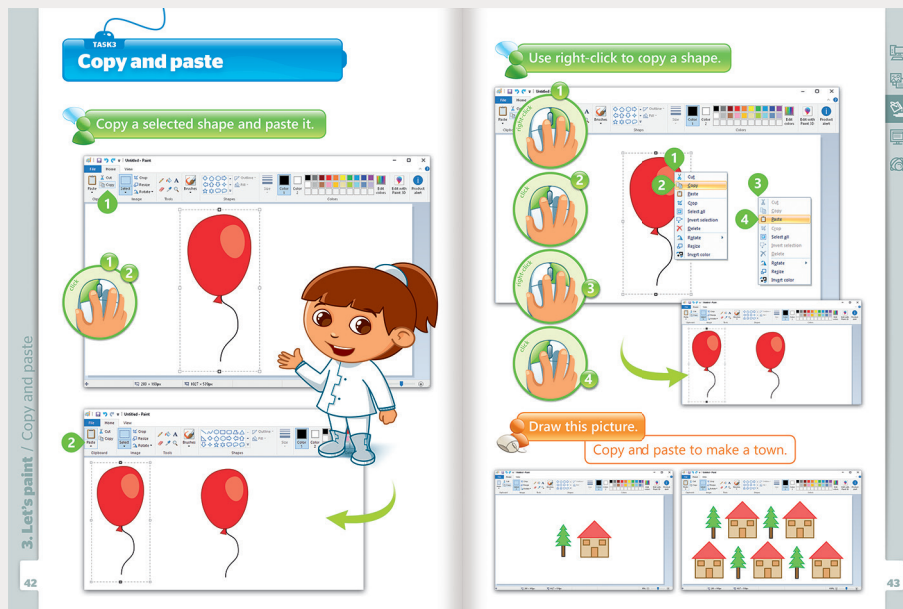
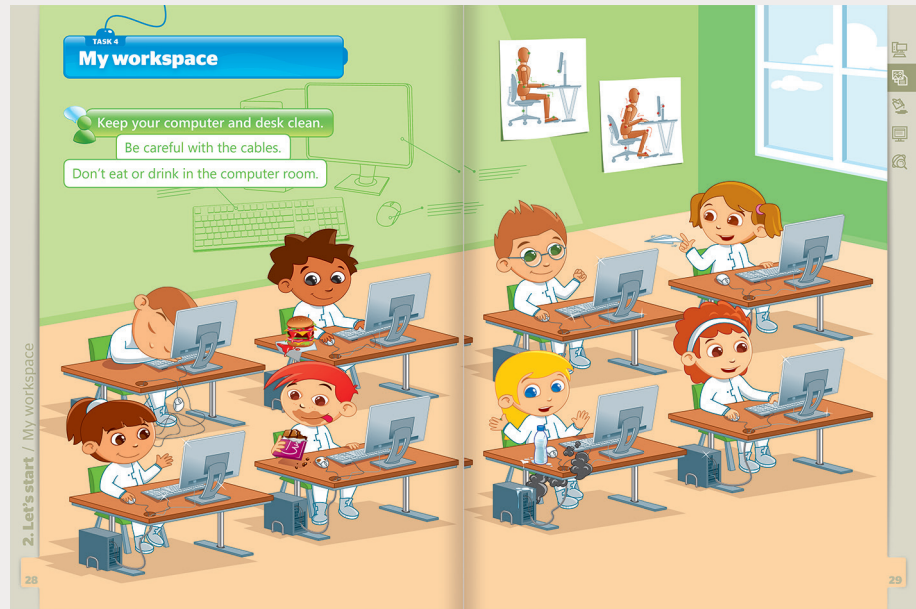
discover more at [binarylogic.net](http://binarylogic.net)

# Key Features

An innovative approach to teaching Computing and ICT written by a team of educators.

*Follows latest Computing and ICT teaching standards & requirements.*

Each book has four or five modules. Each module provides a range of tasks and activities that help students to develop their Computing and ICT skills and allow teachers to monitor the students' progress.



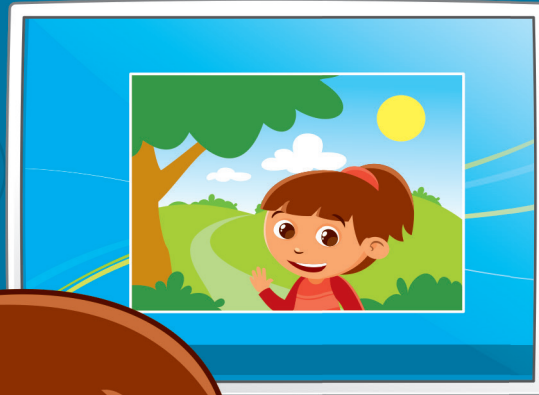
*Clear learning objectives and functional skills.*

Clear explanations and illustrative contemporary examples. The activities are based on school subjects taught in each grade.

*New content continually updated according to changes in technology.*

Students learn how to work with many different platforms and tools. The online video tutorials guide the students through each task.

## 2. Let's start



Computing and ICT - Sample Pages  
DIGITAL KIDS STARTER MODULE 2

1  
GRADE







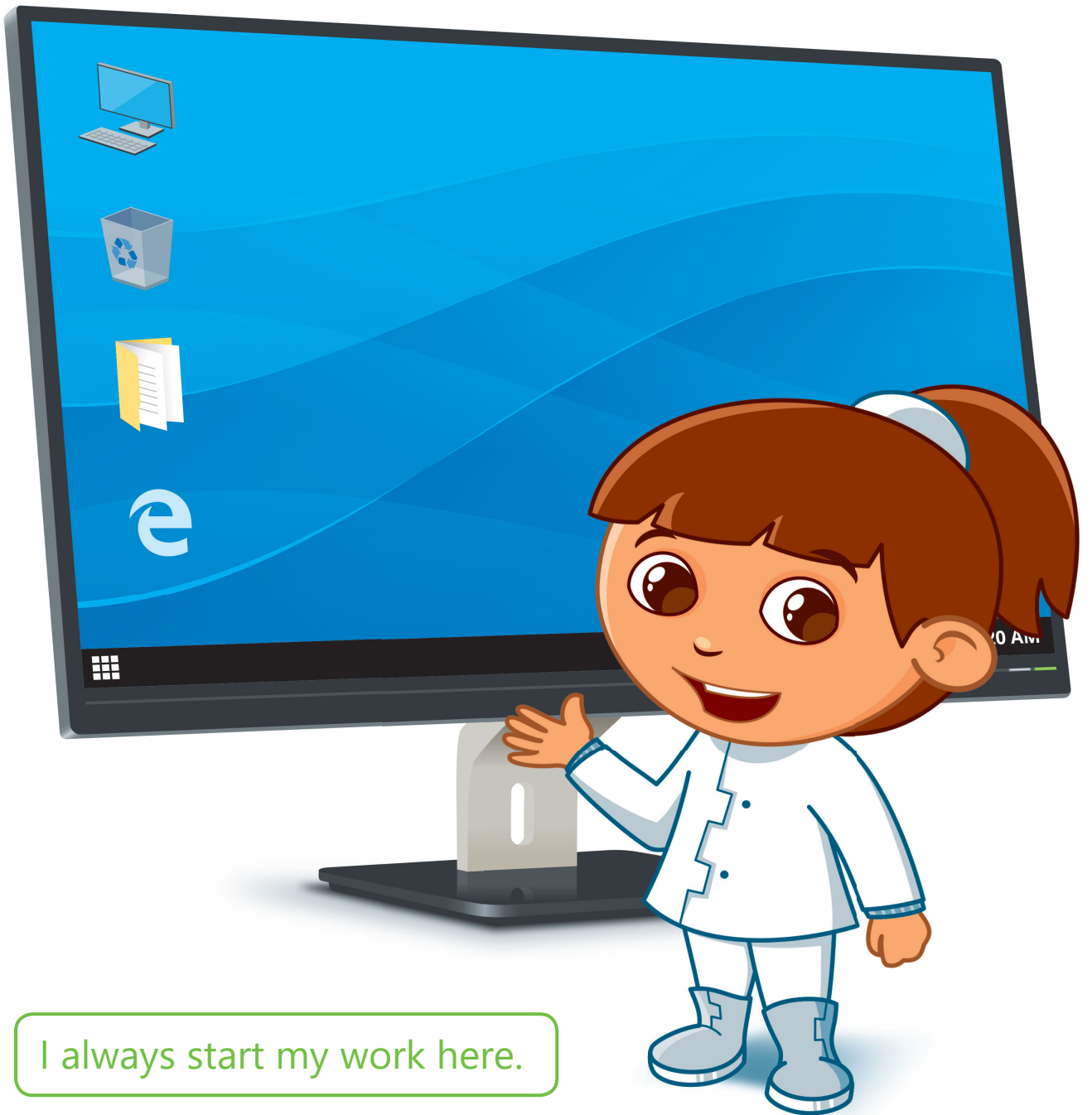
Computing and ICT - Sample Pages  
DIGITAL KIDS STARTER MODULE 2  
**1**  
GRADE



TASK 1

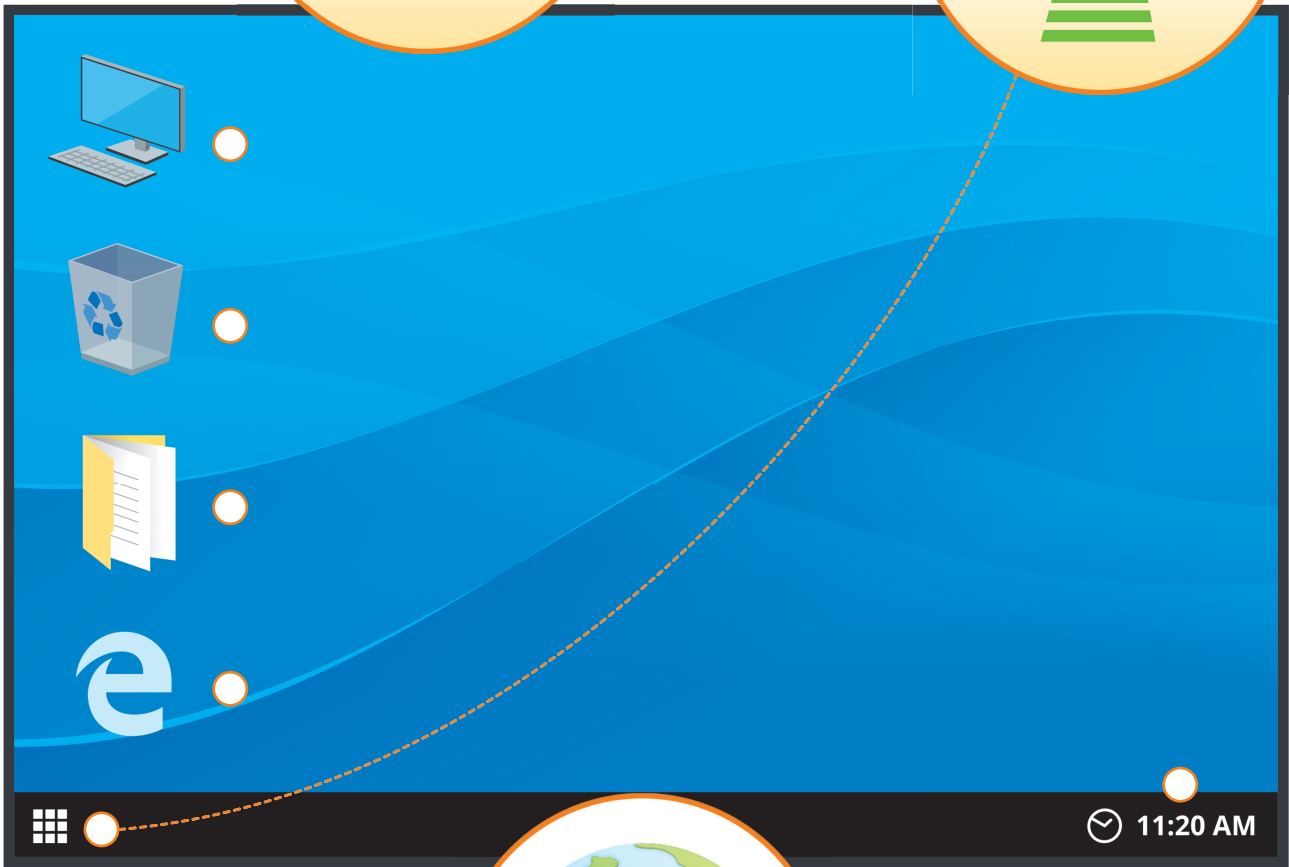
# My desktop

This is my desktop.



I always start my work here.

Match.



TASK 2

# Start a program

To start a program.

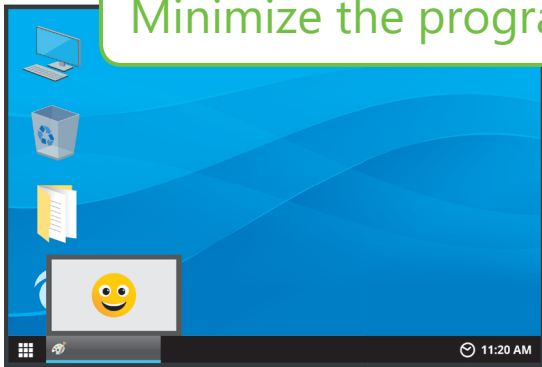
double-click its icon.



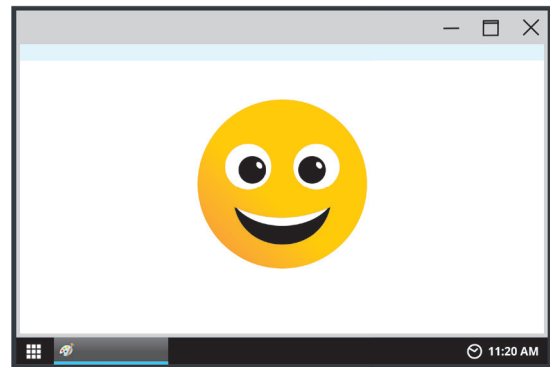
# The program window.



Minimize the program.



Maximize the program.



Close the program.





# Text and pictures

Your digital files for learning and having fun.



Match.



TASK 4

# My workspace

Keep your computer and desk clean.

Be careful with the cables.

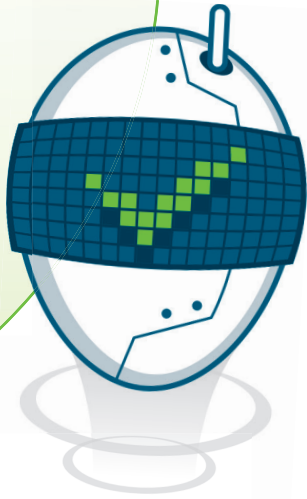
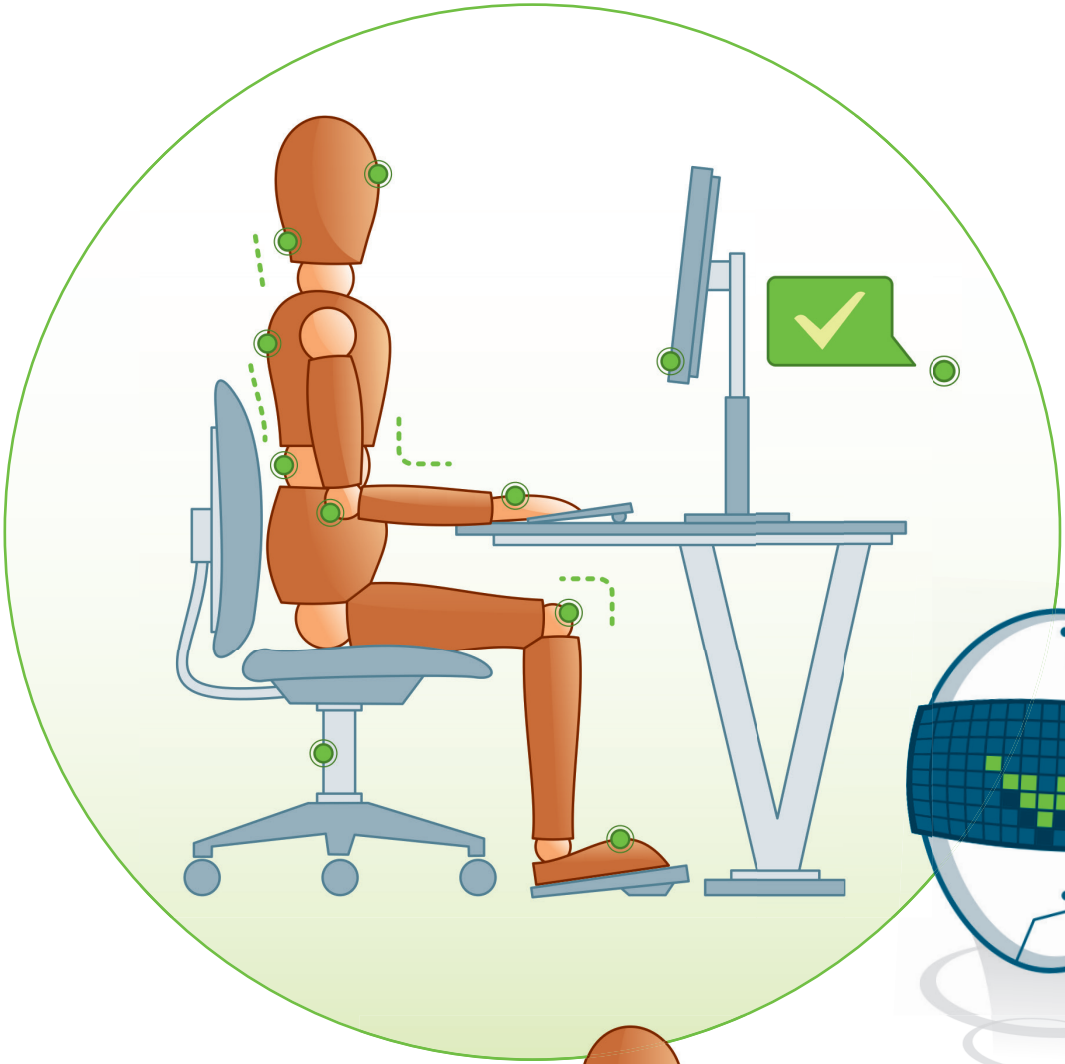
Don't eat or drink in the computer room.







Sit in the correct way.





Who is right? Mark with ✓.

Who is wrong? Mark with ✗.



Welcome to  
**Digital Kids Genius**

Key features and sample pages



discover more at [binarylogic.net](http://binarylogic.net)

# Key Features

An innovative approach to teaching Computing and ICT written by a team of educators.

*Follows latest Computing and ICT teaching standards & requirements.*

Each book has four or five modules. Each module provides a range of tasks and activities that help students to develop their Computing and ICT skills and allow teachers to monitor the students' progress.

The "do you remember?" section focuses on important points which students need to revise.

**do you remember?**

**3. Using communication tools**

**To use your contacts**

- On the side menu, click the **Switch to People** button to open the Contacts window.
- Click on **New contact** (+).
- Fill the fields with the relevant information.
- Click on **New Mail**.
- Next to **To**, click **Choose contacts** to select the contact you want.
- Click a contact and then click the **Done** button to add the contact.
- Click on **CC** -> If you want to add another contact for the same email.
- Click on **OK**.
- Don't forget to fill in the **Subject** and write your message.
- Click on **Send**.

**How to Reply, Reply All, Forward an email message and attach a file**

- Open an email message that you have received.
- Click **Reply** if you want to send an answer only to the person that sent you the message.
- Click **Reply All** if you want to reply to the person that sent you the message and to all other recipients listed in the **CC** field.
- Click **Forward** if you want to send the original message to someone else (all the attachments will be copied).
- Add more recipients if you want.
- Use the **Attach** button to add files.
- Click **Send**.

Always remember to be polite when you write a message and check for spelling mistakes before you send it.

**Internet and the web**

The Internet is everywhere in your life. Your school, home and public places are all connected to the Internet. Also, with your computer you can communicate with friends of yours that have computers too. How do all these computers communicate? Through the Internet, of course! This way, you can exchange files, send email, chat, etc. This connection between the two computers is made either through cables or wirelessly.

**LAN**

When two or more computers communicate, you have a computer network. There are two types of networks depending on the location of the connected computer.

- A **Local Area Network (LAN)** is a small network. Usually it's not bigger than a classroom, a floor or a building. Your school may have LAN.
- A **Wide Area Network (WAN)** is a large network. Usually it's a network that covers two cities or two countries. For example, a huge multinational company uses a WAN to connect its offices around the world.

The Internet is a global network of millions of computers that exchange information. It's the largest network that exists today and connects people, government and academic networks. On the Internet, you can find a huge amount of information, photos, videos and more.

You can find a lot of music and movies on the Internet, but this doesn't mean that everything is free to copy.

**2. Producing multimedia / Use capture devices**

When you take photos with your smartphone, tablet or camera, you can import them to your computer. Why should you do that? Well, because you can store thousands of photos on your computer, organize them and keep them safe. If your device breaks, at least you'll still have your photos.

**To store photos and videos on your computer**

- Connect your camera to your computer. You usually connect it via USB cable.
- After your computer recognizes your device, the **Autoplay** window will appear.
- Select **Open folder to view files**.
- The window that contains your photos will appear.
- Click on **Copy** and **Paste** them where you want.

**Bits and bytes**

Every file takes up some space on your computer. Some files are small, some are large and some are huge.

The size of a text document is small. It usually ends in a .txt extension.

A picture (an image file) can be several kilobytes (KB) or megabytes (MB), depending on the actual size of the picture and the resolution. Show details (R).

A video file can be many megabytes (MB) or even gigabytes (GB), depending on the length and video quality.

**SMART TIP**

When you take a picture with your camera, it is stored as a memory card. As an alternative, you can insert the memory card in a card reader and open the files directly.

**File extensions**

Each file has a name and an extension, for example myfamily.jpg. In this example, ".jpg" is the extension of the file, which shows what type of file it is. ".myfamily.jpg" is a JPEG photo file.

Here are the most common file types for your files:

Text file (only read)	.doc, .docx, .rtf
Presentation file	.ppt, .pptx, .pps
Data file (numbers and text)	.csv
Spreadsheet file	.xls, .xlsx, .xlm
Image file (picture, drawing or photo)	.jpg, .jpeg, .png, .gif, .bmp, .tif
Image file (vector drawing)	.ai, .eps, .svg, .dmg
Sound file	.wav, .wma, .m4a
Video file	.mov, .avi, .mp4, .mkv, .h264, .h265, .m4v, .mpg, .mpeg
eBook	.pdf, .epub, .mobi
Compressed file	.zip, .rar, .tar, .gz

You can check the size of a file by right-clicking on the file and then choosing **Properties**.

**hands on!**

Check the sizes of the different files that you copied from the capture devices and then compare them with your "friends" files. Can you see the differences?

File	Size
Text document	1 KB
Drawing	100 KB
Photo	2 MB
Sound recording	5 MB
Song	3 MB
Video	100 MB

Match the following icons with the right extensions.

*Clear learning objectives and functional skills.*

Clear explanations and illustrative contemporary examples. The activities are based on school subjects taught in each grade.

*Project-based learning*

The group-work activity consolidates skills previously taught and encourages students' collaboration. Most group-work activities are cross-curricular.

*New content continually updated according to changes in technology.*

Students learn how to work with many different platforms and tools.

The "Other platforms" section at the end of each module shows some of the available alternatives. The online video tutorials guide the students through each task.

New vocabulary is organized in related topics.

**Other platforms**

**Apple Numbers for iOS**

Just tap and everything you learned in the previous pages is before your eyes. You can use the same functions to create charts to show your data. And you can do all that using a mobile device.

**Sheet to Go for Google Android**

Use **Sheet to Go** to create and edit your data in the palm of your hand. Insert or delete columns and rows and work with functions everywhere. Tap, insert and you will find everything.

**LibreOffice Calc**

Similar tools are here to help you create your own spreadsheet with **LibreOffice Calc**. You can create charts and make calculations using functions. Format your data, you can do all with **LibreOffice Calc** and your table by inserting rows and columns in a similar way.

**wrap up**

Now you have learned how to:

- format cells.
- merge cells.
- wrap text.
- make calculations.
- use functions.
- use charts to present your data.
- print.

**group work**

Time for Statistics!

Find out information about the population of your country. What is the population now and what was it ten years ago? Create a table with information about gender, age, etc. Use charts to present this information.

**GLOSSARY**

delete	column width	merge	statistical
average	function	move	row height
axis	functions	merge	sum
chart	legend	move	wrap



# 1. Creating a document

Computing and ICT · Sample Pages  
DIGITAL KIDS GENIUS MODULE 1

5  
GRADE



**Hi! Welcome back!**

**It's time to learn how to make your documents more attractive and easier to read. Sometimes you have to find and replace words or phrases clearly.**

**Also, you may want to show some information and make it stand out from the rest of the text.**

**What do you do?**

**Use a table, of course!**

**Are you ready to start?**

**Let's go!**

## **Learning objectives**

**In this module you will learn:**

- > the correct use of spacing between lines and characters.
- > how to find or replace a word quickly, anywhere in the document.
- > how to edit and format tables.
- > to choose the best document view according to your needs.

## **Skills**

**After this module you will be able to:**

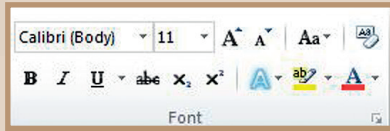
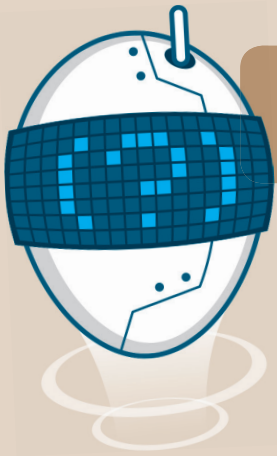
- > change the character spacing of a word.
- > find and replace a word or a phrase.
- > create and format tables.
- > change the view of your document.

## **Tools**

- > Microsoft Word
- > LibreOffice Writer
- > Apple Pages
- > Docs to Go for Google Android

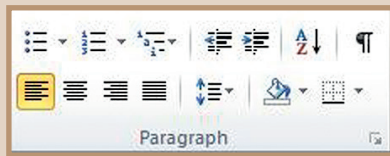


# do you remember?



## How to choose a font

- > Change the **Font**.
- > Change the **Size** of the font.
- > Make the font **Bold**.
- > Make the font **Italic**.
- > **Underline** the font.
- > Change the **Color** of the font.

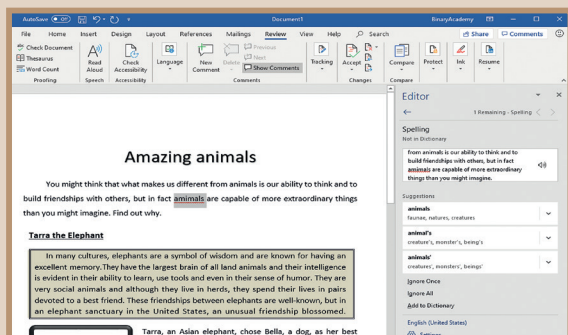
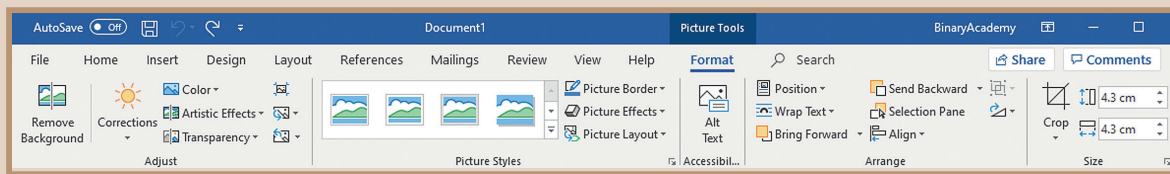


## How to format a paragraph

- > **Align** a paragraph.
- > Adjust the **Line Spacing**.
- > Put a **Border** around the text.
- > Insert **Bullets** or **Numbering**.

## How to format a picture

- > Remove the **Background** of an image.
- > Change the **Style** of an image.
- > Change the **Position** of an image.
- > Change the **Wrap** of the text around the image.



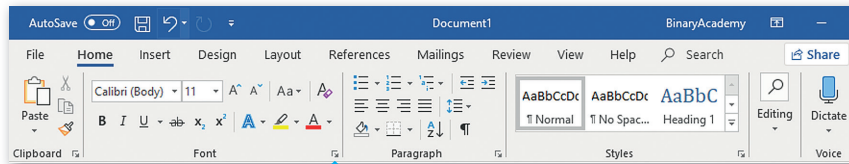
## How to check for mistakes

- > On the **Review** Tab, in the **Proofing** group, click **Spelling & Grammar**.
- > In the window that will appear select the word you want from **Suggestions** and click **Change**.
- > If you want to ignore the word, click **Ignore Once**.

## TASK 1

# Advanced formatting

You already know how to quickly format a paragraph. Now let's explore some more options. In **Microsoft Word**, most of the advanced formatting options are on the **Home** tab.



## Character Spacing

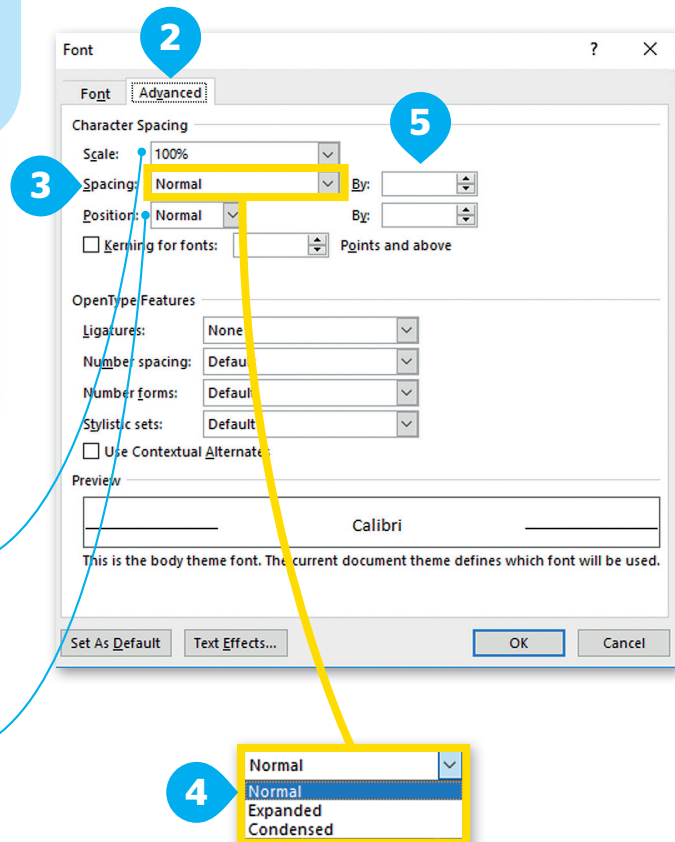
Characters are the letters, numbers and symbols of the text. Character spacing is the distance between the letters of a word. We use this for many reasons: Sometimes you need more space between characters to make your text easier to read or you want to make the reader pay attention to a specific word without changing the word or phrase to bold or underlining it.

To apply character spacing:

- > Select a word or phrase.
- > On the **Home** tab, in the **Font** group, click the expand button. 1
- > In the **Font** window that will appear click **Advanced** tab. 2
- > In the **Spacing** 3 drop down list, select **Expanded** if you want to increase the space or **Condensed** if you want to decrease the space. 4
- > In the **By** text box 5 you can adjust the spacing in points (3pt is about 1 mm).

**Scale** can change the width of the characters. More than 100% will make the characters wider and less than 100% will make them narrower.

**Position** moves the characters you selected above or below the line of the rest of the text (baseline).



## SMART TIP

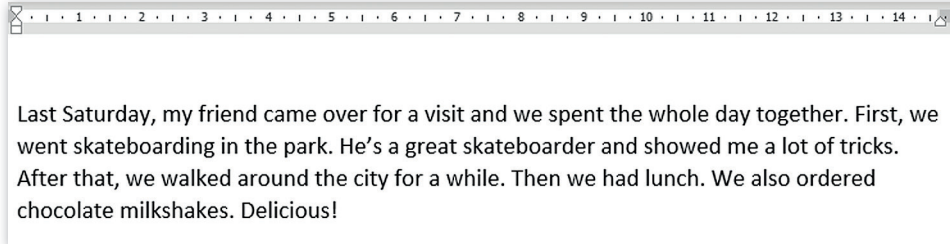
**Position is not the same as Superscript or Subscript. It doesn't change the size of the font, like they do.**



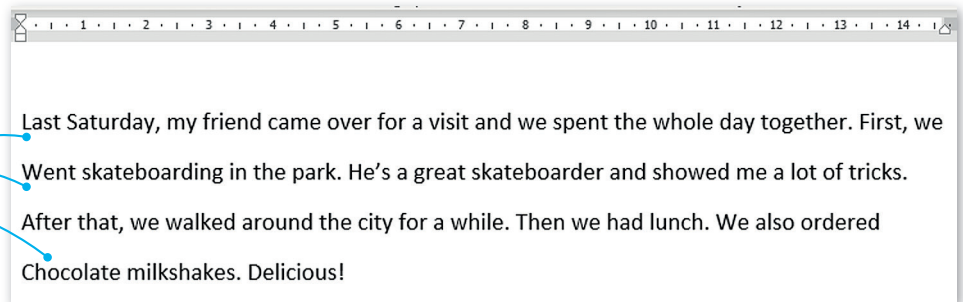
## Lines and paragraphs

When you type a lot of text, you should follow some rules. For example, when you create a paragraph, keep typing until you finish it. Don't press **Enter ↵** after each line. The program will take care of everything and wrap your text to the next line automatically.

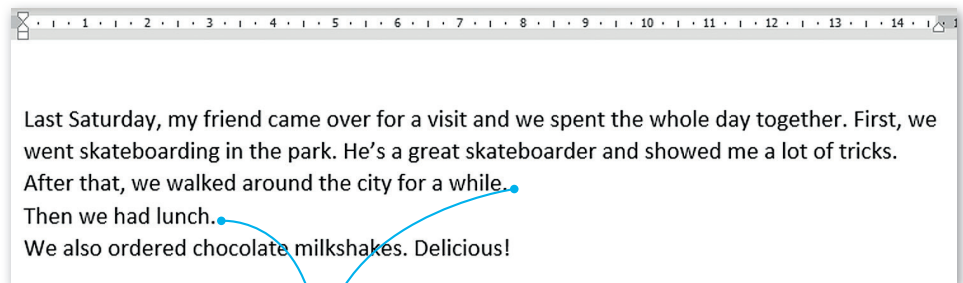
This is a paragraph with continuous typing:



Press **Enter ↵** only when you want to create a new paragraph or add a new item in a list with bullets or numbers. The program will automatically add more space between paragraphs to make the text easier to read.



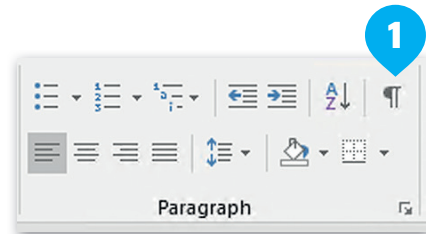
**Take a look! There is extra space between the lines and capital letters in the middle of the sentences! This is a sign that you have pressed **Enter ↵** at the end of a line, when probably you shouldn't have.**



**Press **Shift ↑** + **Enter ↵** to break the line without a new paragraph.**

## Show / Hide non-printable characters

To see if you have pressed **Enter ↵** or **Shift ↑ + Enter ↵** try the following steps: On the **Home** tab, in the **Paragraph** group, click the **Show/Hide** button. **1** By clicking this button you can see these non-printable characters on your document where you have pressed **Enter ↵**, **Space Bar**, **Tab ↵**, etc.



Look at this example:

← is for **Shift ↑ + Enter ↵**  
↑ is for **Enter ↵**  
· is for **Space Bar**  
→ is for **Tab ↵**



*Don't worry about these symbols. You don't have to hide them before printing. They are not printable. To hide them, just click on the **Show/Hide** button again.*

# hands on!

Type three paragraphs on how you spent your last weekend. Remember the rules about the use of **Enter ↵**.

Type the following text and format it the same way on your computer. Don't use the spacebar to create extra spacing!

### The Solar System

There are eight planets in our Solar System. Starting from the Sun, there's Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. Some planets are bigger and some are smaller than Earth. Some are hotter and some are colder.





## TASK 2

# Search and replace

Sometimes you want to find a word or phrase somewhere in the text and replace it with another one. If the document is large, you need a lot of time to read all of it. Imagine trying to find a single word or phrase in a document with 20 pages! Difficult, isn't it?

Let's see how we can find any word in our document easily.

To find a word or phrase:

- > On the **Home** tab, in the **Editing** group, click **Find**. 1
- > The **Navigation** panel 2 will appear on the side.
- > In the **Search Document** text box, type the word you want 3 and press **Enter** ↵.
- > The program will find and highlight all the places in your document containing the word or phrase you typed. 4

The screenshot illustrates the search and replace process in Microsoft Word. The ribbon is on the Home tab, and the Editing group is active. The Find button is highlighted with a blue circle and the number 1. The Navigation pane is open on the left, showing the search results for 'elephant' with a blue circle and the number 3. The main document area shows the word 'elephant' highlighted in yellow in the text 'Tarra the Elephant' and 'elephant sanctuary', with blue circles and the number 4. A yellow arrow points from the Find button to the highlighted text. A small image of an elephant is also visible in the document.



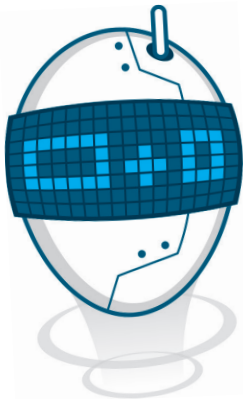
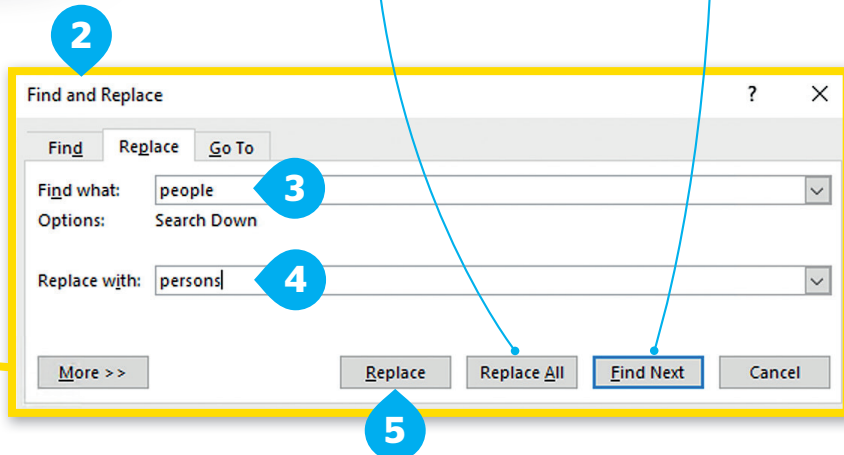
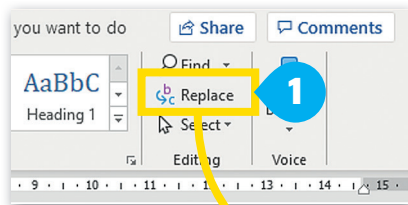
**Microsoft Word** has a tool that can search an entire document to find the word or phrase you want and instantly replace it with another one. It's called **Find and Replace**.

To replace a word or phrase:

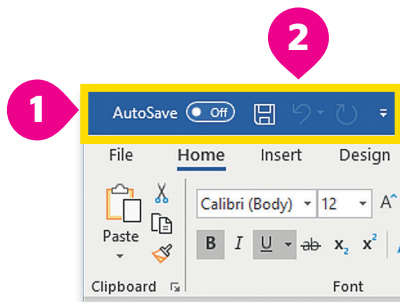
- > On the **Home** tab, in the **Editing** group, click **Replace**. **1**
- > The **Find and Replace** **2** window will appear.
- > In the **Find what** text box, type the word or phrase you want to find. **3**
- > In the **Replace with** text box, type the new word or phrase. **4**
- > Click **Replace**. **5**

**Replace All** finds the word/phrase and replaces it with the word/phrase you want everywhere in your document. Double check before you click it.

**Find Next** shows the next place that this word or phrase exists in your document.



Bz...Press **Ctrl + H** to open the **Find and Replace** dialog box...Bz



If you change your mind about a word or phrase you replaced, or if you make a mistake, you can correct it with **Undo**. On the **Quick Access Toolbar** **1** at the top of the program window, click the **Undo button** **2** or press **Ctrl + Z**.



# hands on!

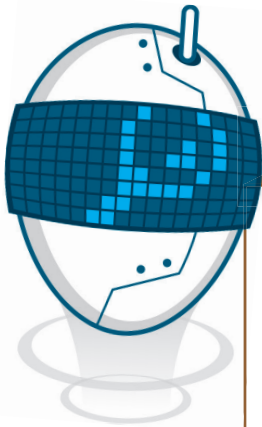
Type the following text and try to replace the words below with synonyms from **Thesaurus**:

**voyage, reached, famous, explored.**



**Captain James Cook was a famous explorer. He was born in England in 1728. In 1768, he went on his first voyage to the South Seas. On April 19<sup>th</sup> 1770, he reached and explored the East Coast of Australia. Cook named the place he reached first Point Hicks, after one of his sailors.**

Bz...Find the words:  
**Find, Replace, Table, Advanced, Spacing, Character.**



A	N	E	R	L	O	A	V	R	E	P	I	O	P	A	C	S	Q
H	R	E	F	E	G	H	J	U	I	R	C	M	B	Y	H	K	L
Z	S	F	I	N	D	D	A	T	E	X	G	E	V	S	L	E	E
E	F	E	G	H	D	V	R	G	T	R	E	P	L	A	C	E	N
C	J	F	D	X	V	O	Q	C	K	E	B	E	E	P	O	H	V
A	N	T	T	V	I	R	U	H	Q	C	Z	Z	C	D	G	R	E
E	R	F	A	B	H	E	R	D	G	T	A	E	R	B	G	R	H
A	F	D	B	D	V	S	E	R	T	Y	B	F	B	D	F	R	V
E	E	W	L	Q	B	C	H	A	R	A	C	T	E	R	R	E	F
K	G	Z	E	A	V	B	S	O	A	N	W	B	Y	U	N	M	I
R	V	K	J	D	V	S	E	L	T	Y	B	F	B	D	F	R	V
E	V	S	P	A	C	I	N	G	C	T	A	N	E	R	L	O	A
I	M	Y	N	K	G	Z	O	N	V	B	S	F	B	D	F	R	V
H	R	E	F	E	G	H	J	G	T	A	D	V	A	N	C	E	D
R	V	U	M	O	A	V	R	E	O	A	V	R	E	P	I	O	A

### TASK 3

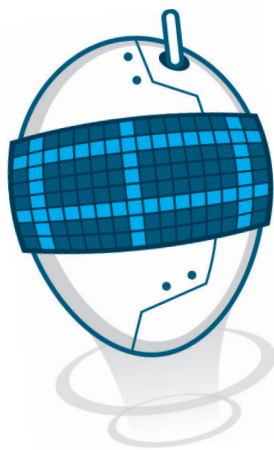
# Working with tables

When you want to work with numbers and other data, you use a spreadsheet. But what do you do when you want to show organized information in a text document? For example, you may want to group the personal details of your classmates together, like their names, last names, addresses and phone numbers, or your school schedule. In this case, you can use a table. This kind of table doesn't have four legs! It's a grid with rows, columns and cells, like on a spreadsheet.

The screenshot shows the Microsoft Word interface. The 'Insert' tab is active, and the 'Table' button in the 'Tables' group is highlighted with a blue circle '1'. A dropdown menu is open, showing a grid of boxes for selecting table size. A 4x4 grid is highlighted with a blue circle '2'. Below the grid, the 'Insert Table...' option is selected. In the document area, a 4x4 table has been created, with a blue circle '3' next to it. A blue callout box contains the following text:

To create a table:

- > On the **Insert** tab, in the **Tables** group, click **Table**. 1
- > In the menu that appears, select the size of the table you want by moving your mouse vertically and horizontally across the boxes. For example, choose 4x4 to create a table with 4 rows and 4 columns. 2
- > A table will appear in your document. 3
- > To type text, just click inside a cell and start typing.



*A table consists of rows, columns and cells, but they don't have names like on a spreadsheet. If you want to do complex calculations, use **Microsoft Excel** and then copy all the cells to your document as a table.*



## Formatting a table

It's very easy to format your table using the **Table Styles** group, or create a custom format.

To apply a style:

- > Click somewhere in the table.
- > On the **Design** tab, in the **Table Styles** group, click the style you like. **1**
- > The style you selected will change the appearance of the entire table. **2**

Monday	Tuesday	Wednesday
Math	Art	Geometry
Physics	Geography	Math
Music	Biology	Language

You can also make a custom style if you want to. To do this, you can use the **Borders** or **Shading** buttons. **Borders** inserts lines around a table or inside a grid and **Shading** colors the cells.

To use shading:

- > Select the area of the table you want to change the color of.
- > On the **Design** tab, in the **Table Styles** group, click **Shading**. **1**
- > Click the color you want to apply to your table. **2**

**1**

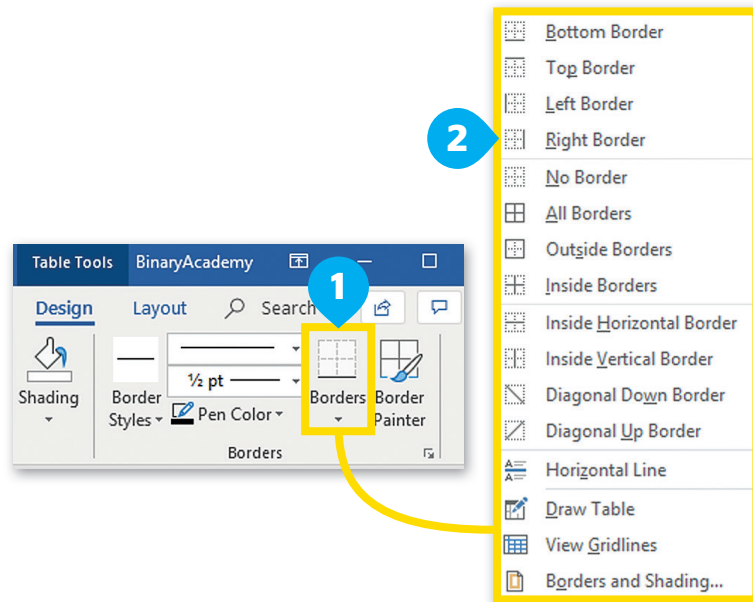
**2**

*As always, you first select the area you want to format and then apply any format you choose from the menus.*



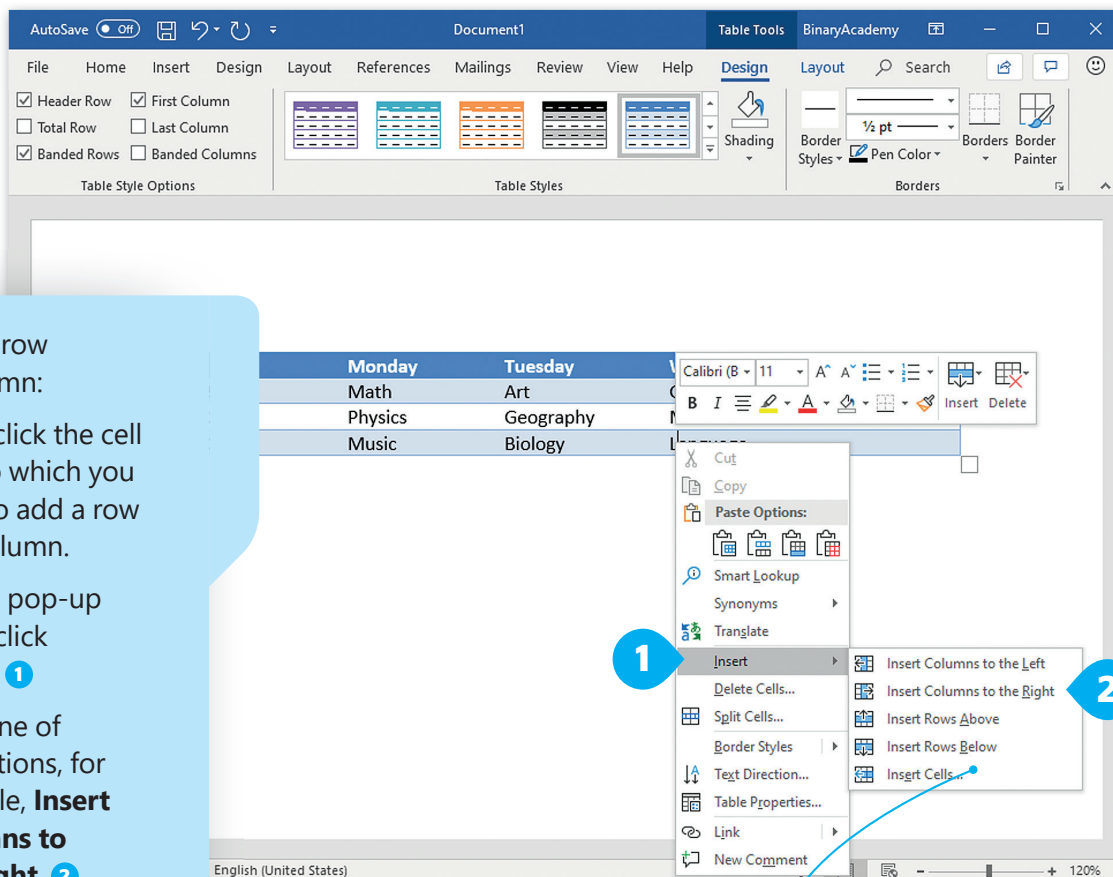
To use a border:

- > Select the area of the table you want.
- > On the **Design** tab, in the **Borders** group, click the small arrow. **1**
- > Click the type of border you want. For example **Right Border**. **2**



## Edit your table

Sometimes you may want a larger table than the one you created. Good news! You don't need to start all over again. You can add rows and columns to an existing table.



To add a row or a column:

- > Right-click the cell next to which you want to add a row or a column.
- > On the pop-up menu click **Insert**. **1**
- > Click one of the options, for example, **Insert Columns to the Right**. **2**
- > A new column will appear on the right side of the selected cell.

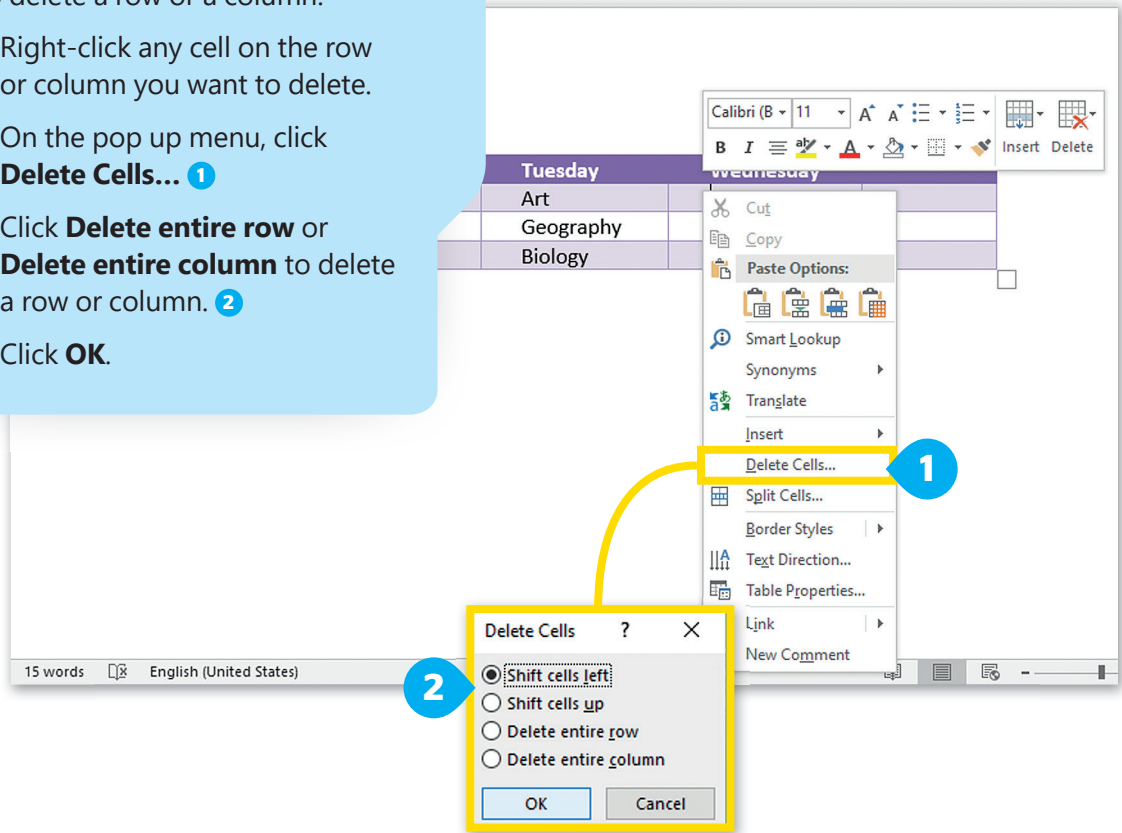
You can also **Insert Columns to the Left**, **Insert Rows Above**, **Insert Rows Below** or **Insert Cells...** to add a single column, row or cell in the table.





To delete a row or a column:

- > Right-click any cell on the row or column you want to delete.
- > On the pop up menu, click **Delete Cells...** 1
- > Click **Delete entire row** or **Delete entire column** to delete a row or column. 2
- > Click **OK**.



hands on!



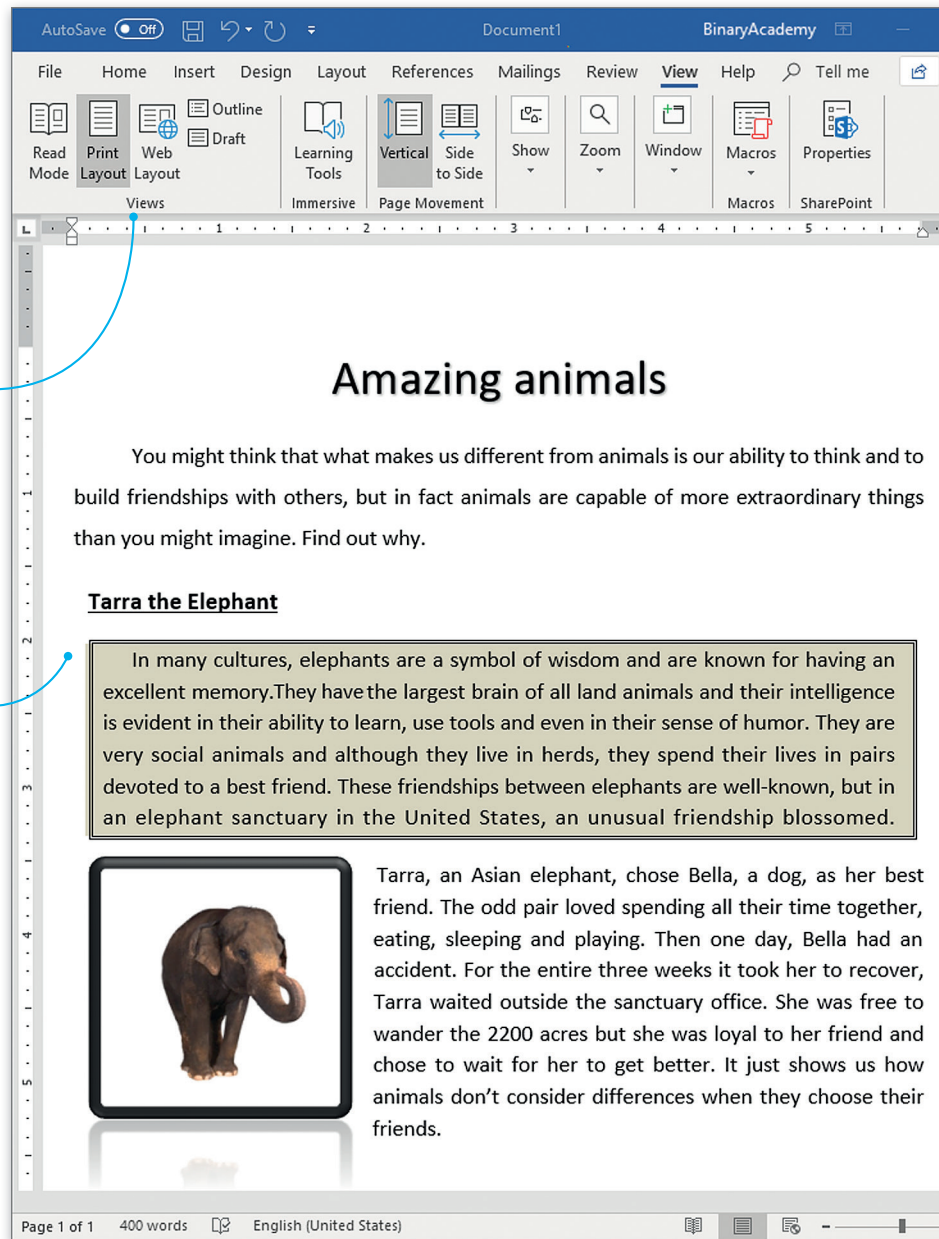
Create a table for your school schedule. Put the days in columns, the hours in rows and the subjects in the cells. Format the schedule as you like. Use a big font size and print it for your desk.



## TASK 4

# Document views

Sometimes the document that you create is not for printing. You may want to share it on the Internet or just create a long list of ideas. To work more effectively, you can view your document in different ways, like **Print Layout** or **Web Layout**.



You can explore these options on the **View** tab, in the **Views** group.

The **Print Layout** is the default view for Microsoft Word. It shows you how the document will look on paper. It's better to use this document view if you are going to print your work.

## BE SAFE

Sometimes you spend a lot of time in front of your computer. You don't want to injure your neck or back so remember to sit properly when you work at your computer. "Mens sana in corpore sano" as the ancient Romans have said - a healthy mind in a healthy body.



## Read documents

The best way to read a document is to select the **Read Mode**. This type of view includes some features that have been designed for reading instead of writing.

To see your document in Read mode:

- > On the View tab, in the Views group, click **Read Mode**. **1**
- > The document will cover the entire screen and most of the buttons are hidden. **2**
- > To edit the document click the **View** tab. **3**
- > In the pop-up menu that appears, click on **Edit document**. **4**

*Read Mode automatically resizes the text, using larger columns and fonts to view the document and make it bigger and easier to read.*



The screenshot shows the Microsoft Word interface. In the top ribbon, the 'View' tab is selected. In the 'Views' group, 'Read Mode' is highlighted with a blue circle and the number 1. The document content is shown in a large, readable font. A blue circle with the number 2 is placed over the document area. In the 'View' tab, the 'Edit Document' option is highlighted with a blue circle and the number 4. A blue circle with the number 3 is placed over the 'View' tab label. The document content is shown in a smaller font, and the 'Edit Document' option is highlighted with a blue circle and the number 4.

The screenshot shows the Microsoft Word interface in Web Layout view. The document content is displayed in a large, readable font, and the margins are wide. The 'Web Layout' view is selected in the View tab.

**Web Layout** shows your document as a web page. Use this layout if you prepare text and pictures for the Internet.

The screenshot shows the Microsoft Word interface in Outline view. The document content is displayed as a list of items, making it easy to navigate. The 'Outline' view is selected in the View tab.

**Outline** is a special view that makes text look like a list of items.

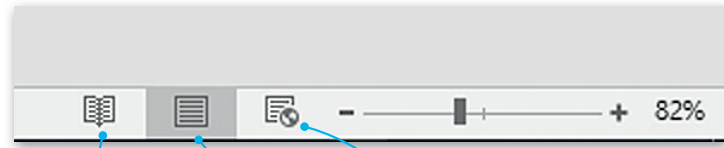
The screenshot shows the Microsoft Word interface in Print Layout view. The document content is displayed in a standard font and margins. The 'Print Layout' view is selected in the View tab.

The default view in older versions of Microsoft Word was **Draft**. In this view, you cannot see the actual margins of the page. Use this layout only if your computer screen is too small for **Print Layout**.

## Zoom in and out

Use the zoom slider on the bottom right corner of your window to make your document appear larger or smaller on screen. If you want to work on small details, zoom in (>100%). If you want to see the whole page or more than one page together, zoom out (<100%). Of course, this will not change the size that the text or pictures are printed when you print the document.

*Bz...You can change the view of your document much faster with the small buttons on the status bar at the bottom of the program next to the zoom slider.*



Read  
Mode

Print  
Layout

Web  
Layout

# hands on!

Are the following sentences **true** or **false**?

1. The default view in **Microsoft Word** is **Draft**.  
**True**  **False**
2. You use **Web Layout** to see how the text will appear on the web.  
**True**  **False**
3. You always have to use **Outline** before you print a document.  
**True**  **False**
4. When your document is in **Print Layout**, it looks exactly as it's going to be printed.  
**True**  **False**
5. You can edit your document in **Full Screen Reading**.  
**True**  **False**

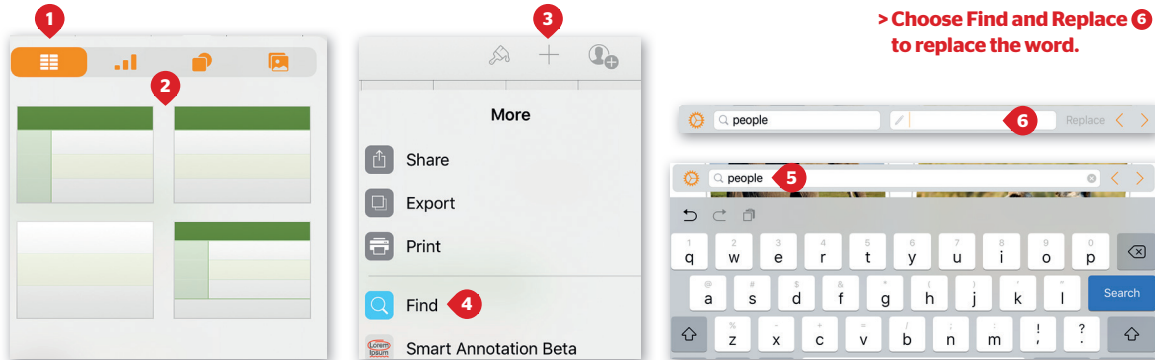




# Other platforms

## Apple Pages for iOS

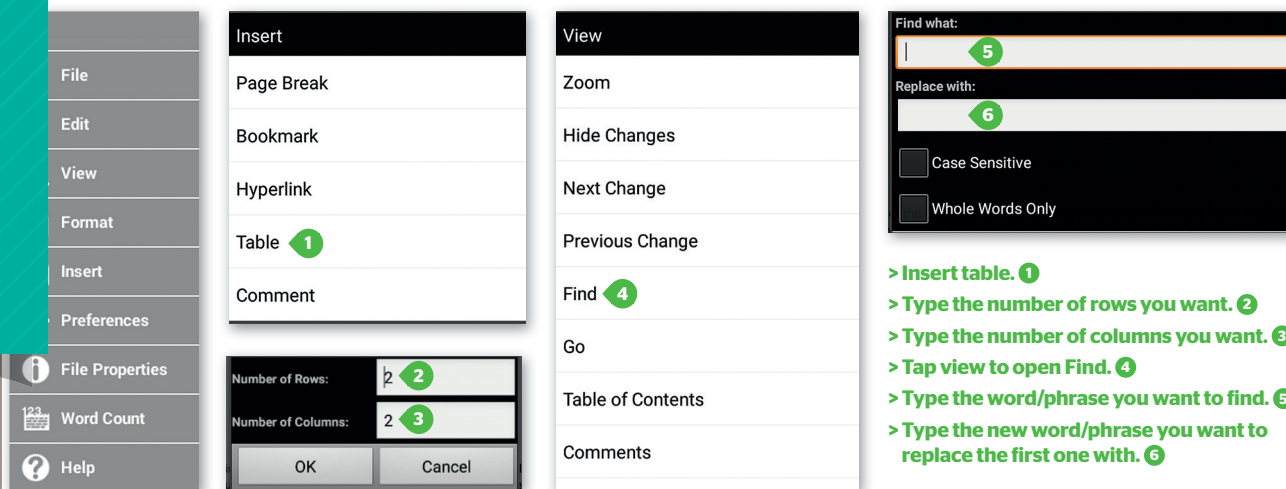
With **Apple Pages**, you can easily insert tables and find words or phrases.



- > Tap to tables. **1**
- > Tables templates. **2**
- > Tools button. **3**
- > Find tool. **4**
- > Type the word you want to find. **5**
- > Choose Find and Replace **6** to replace the word.

## Docs to Go for Google Android

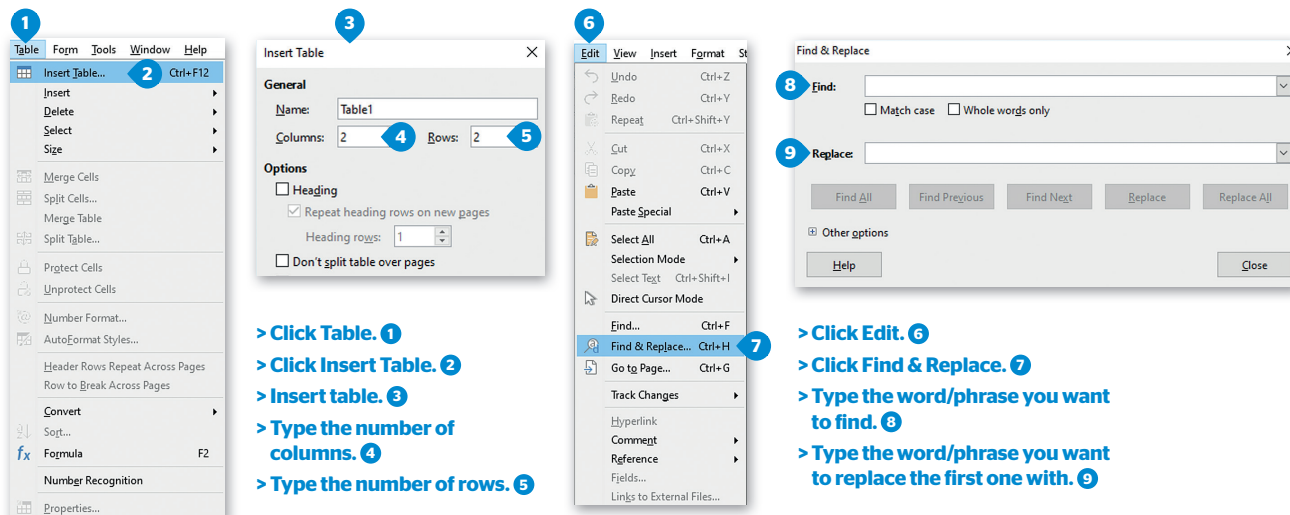
With **Docs to Go**, you can insert tables or find words with a few taps.



- > Insert table. **1**
- > Type the number of rows you want. **2**
- > Type the number of columns you want. **3**
- > Tap view to open Find. **4**
- > Type the word/phrase you want to find. **5**
- > Type the new word/phrase you want to replace the first one with. **6**

## LibreOffice Writer

Don't forget! **LibreOffice Writer** is like an old version of **Microsoft Word**. Learn one and you can easily learn the other. Inserting tables or finding and replacing words or phrases will be very familiar procedures for you.



- > Click Table. **1**
- > Click Insert Table. **2**
- > Insert table. **3**
- > Type the number of columns. **4**
- > Type the number of rows. **5**
- > Click Edit. **6**
- > Click Find & Replace. **7**
- > Type the word/phrase you want to find. **8**
- > Type the word/phrase you want to replace the first one with. **9**

# wrap up

Now you have learned how to:

- > change the space between the characters of a text.
- > use **Enter ↵** and **Shift ⬆ + Enter ↵** correctly to make spaces between lines.
- > find a word in a text quickly.
- > replace a word or phrase with another one.



**group work**

Organize a picnic.  
Write a small text about a place near your school and what you want to do there.  
Use tables to organize what you need to bring with you, for example food, games, etc. and who will bring what.

## GLOSSARY

active cell

column

layout

replace

baseline

document view

outline

row

cell

grid

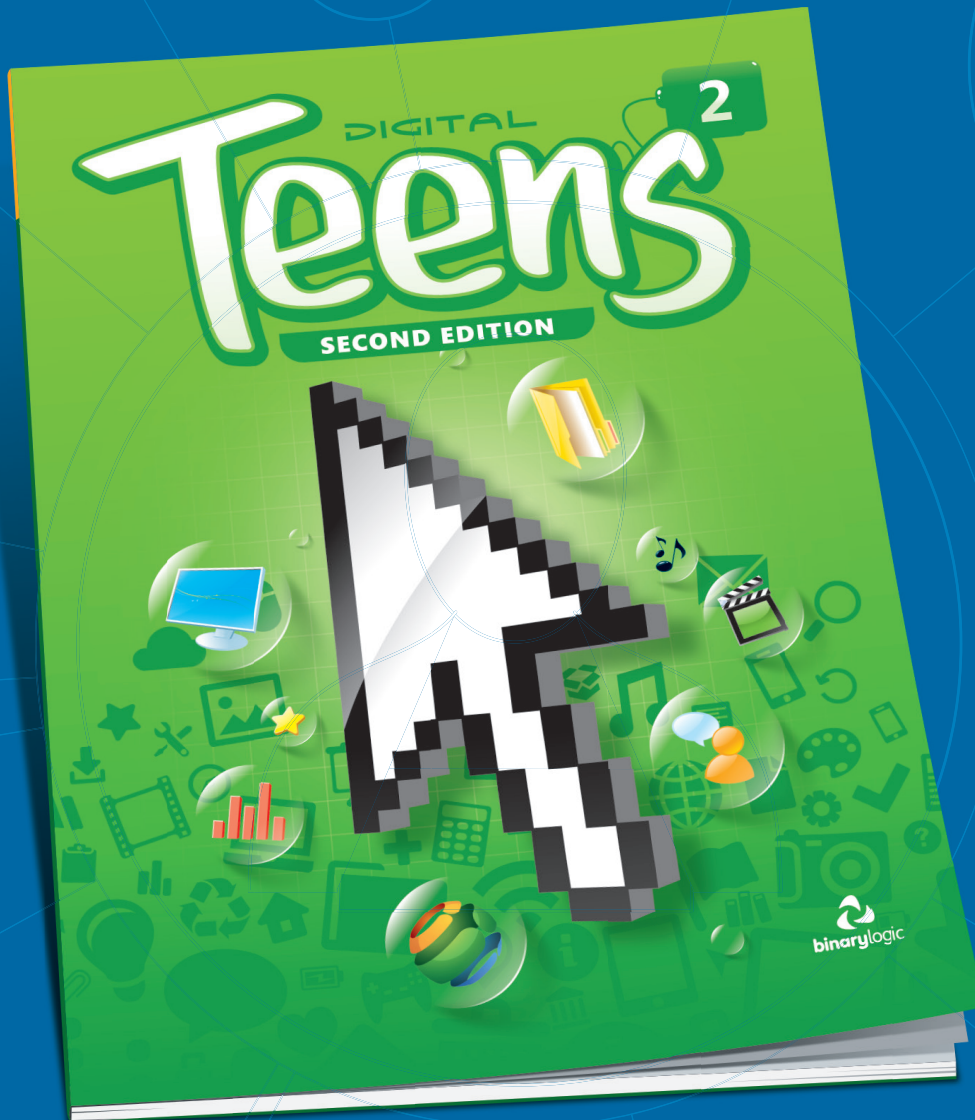
position

scale



Welcome to  
**Digital Teens 2**

Key features and sample pages



discover more at [binarylogic.net](http://binarylogic.net)



# Key Features

An innovative approach to teaching Computing and ICT written by a team of educators.

Clear learning objectives and functional skills.

Each book has four or five modules. Each module provides a range of tasks and activities that help students to develop their ICT skills and allow teachers to monitor the students' progress.

**Format a Web Page**  
On the Internet most of the pages are colorful and have a lot of images. You already know how to insert an image into a document. Now, let's see how you can change the color of a page.

**To change the Page Background Color:**

- On the Design tab, in the Page Background group, click **Page Color**.
- Choose the color you prefer.

**You may have heard the term 24-bit colors for 24-bit colors. A 24-bit color palette has 65,536 color variations, whereas a 32-bit color palette has 4,294,967,296.**

**BE SAFE**  
Don't sit in front of the screen for too long. Try to take a 5-minute break every 45 minutes of work.

**Task 6 Project**

If you want to analyze some data, first of all you need to gather it. Brainstorm a list of the sites that you want to include in your analysis. Write the sites down on a notepad and don't forget to write down all the things that you want to display and compare.

**1** Let's analyze the certain slider revisions in your country. Copy the Internet try to cross check of your information to make sure it is correct.

When you finish collecting your data, open Microsoft Excel and type it in an appropriate way. Keep in mind that you should add headings or titles to your columns and rows in order to define what is shown in each cell.

After inserting your data, create the formulas that you need. Don't forget that empty cells are ignored.

Next, you can illustrate your data with the help of graphs. Remember that you use graphs to make visual comparison between one or more series of data points. In this way you can present your data in a more understandable way. You can add a chart title and axis title to make your graph more informative.

**2** Form teams and analyze relevant data about the top five countries with the most medals in the Olympic Games in the last twenty years. Find information on the Internet.  
Don't forget to illustrate the data with the help of a graph. Print the graph and the table and share them with your classmates.

## Project-based learning

Clear explanations and illustrative contemporary examples.

The activities are based on school subjects taught in each grade and are designed to engage students through real life projects.

New content continually updated according to changes in technology.

Students learn how to work with many different platforms and tools. The "Other platforms" section at the end of each module shows some of the available alternatives. The online video tutorials guide the students through each task. New vocabulary is organized in related topics.

**Other platforms**

**HandBase for iOS**  
With HandBase you can track almost anything on your iPhone or iPad! Here you can keep your shopping list, music, & DVD collection, project organizers, sports schedules, or flat list of passwords you keep handy in your desk drawer.

**Memento for Android**  
Use Memento to gather all the information about your DVD collection in books. Categorize your database by Director or Author and create any information that you want. Find out how many books you have in a certain author or how many movies with your favorite actor.

**Obvibase and Caspio**  
If you want to keep everything organized and easily accessible, you can use online database creators like Obvibase and Caspio. Now you can access your data from any web browser and ensure that your data is secure and easily manageable.

**wrap up**

Now you have learned:

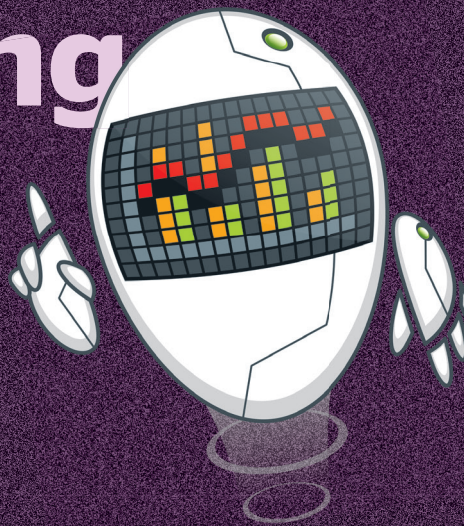
- how to collect information
- how to organize it into a database
- how to retrieve information with filters and sorting
- what primary keys and relationships are
- how to collect personal information
- how to use a data logger for lab experiments.

**GLOSSARY**

CSV	export	key	record
customer filter	SQL	relationship	relationship
data	max	sorting	sort
database	ID field	unique	unique
data collection	insert	one-to-one	type
data logger	information	primary key	



# 5. Analyzing data



It's time to master your math. In this module, you are going to use Microsoft Excel to make complex calculations without mistakes. You will learn to present your information with different types of charts and to format the data so that it is easier to understand. You will also learn how to transfer your data and use it in any other program.

## Learning objectives

In this module you will learn:

- > how to make complex calculations.
- > how to use Excel's functions for faster calculations.
- > how to work with logical functions.
- > how to avoid mistakes in calculations.
- > how to present information with charts.
- > how to emphasize information using formatting.
- > how to exchange data with other programs.

## Skills

After this module you will be able to:

- > work with powers and percentages.
- > use advanced functions.
- > create conditions using multiple IF functions.
- > use relative and absolute references.
- > understand and correct error messages.
- > format different types of charts.
- > create mini charts.
- > apply conditional formatting to cells.
- > import and export data as a CSV file.

## Tools

- > Microsoft Excel
- > Apple Numbers
- > Sheet To Go
- > LibreOffice Calc



## TASK 1

# Complex calculations

You know how to make simple calculations using **Microsoft Excel**. What about a complex algebraic expression? Well, it's time to make difficult things much easier and faster.

## Calculation rules

When you do complex calculations and there is more than one part to the formula, the order of the calculations is from left to right, but any part of the formula in parentheses will be calculated first.

### The calculation order:

- 1 Firstly, do the operations in parentheses.
- 2 Secondly, do the calculations with exponents.
- 3 Then, do the multiplications and divisions.
- 4 And in the end, do the additions and subtractions.

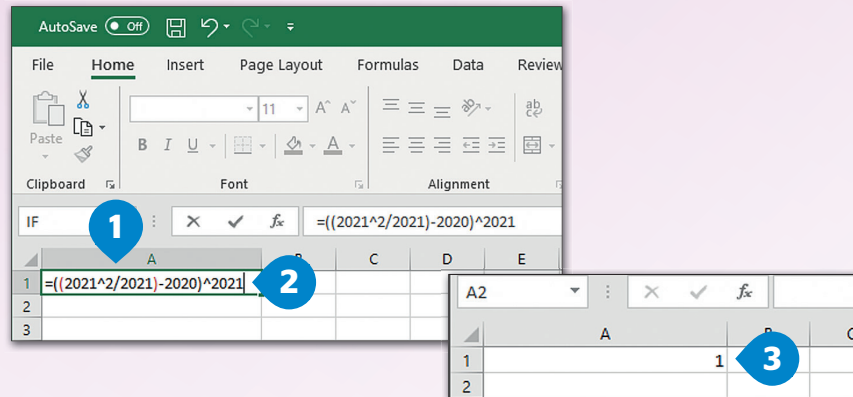
### The basic calculations and their symbols in Microsoft Excel are:

*	multiplication
^	exponent
/	division
+	addition
-	subtraction
%	percentage

Let's find the result of  $((2021^2/2021) - 2020)^{2021}$

### To calculate the formula:

- > On a worksheet, click cell **A1**. 1
- > Type =, to start the formula.
- > Type the mathematical formula  $((2021^2/2021) - 2020)^{2021}$ . 2
- > Press **Enter**. 3



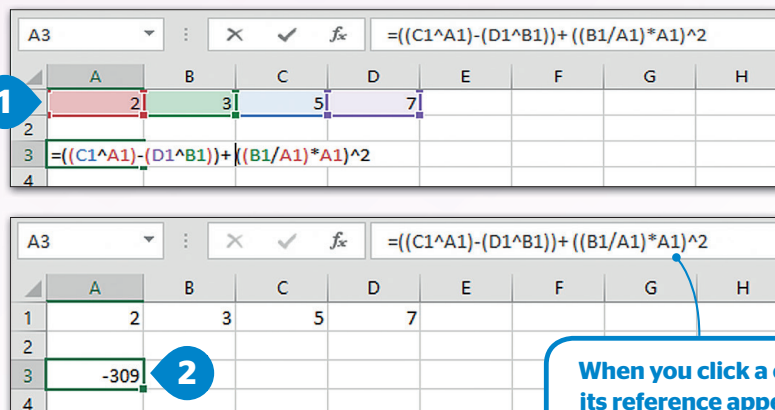
**Let's try another one!** This time, you are going to write a formula which will contain a cell reference. In this way, you will produce a result that may change if the data in those cells also change.

Type the numbers below:

	A	B	C	D	E
1	2	3	5	7	

To calculate the expression  $((C1^A1) - (D1^B1)) + ((B1/A1) * A1)^2$ :

- > Click cell **A3** and type  $=((C1^A1) - (D1^B1)) + ((B1/A1) * A1)^2$ . 1
- > Press **Enter**. 2



When you click a cell, its reference appears in the formula box.



## Work with percentages

Working with percentages is a little bit tricky. Pay attention and pretty soon, everything will be clear!

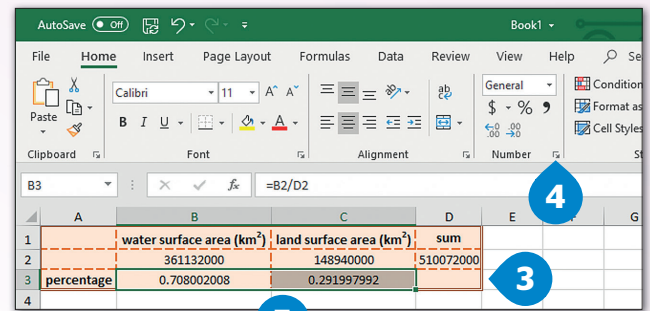
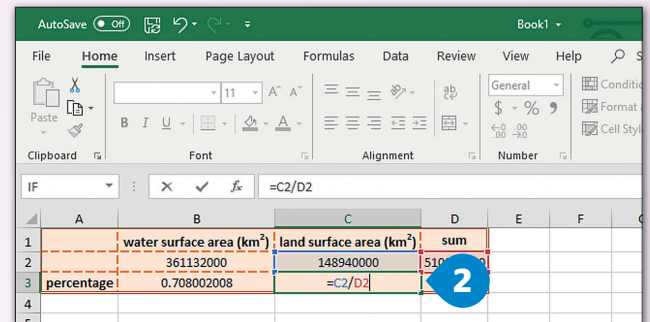
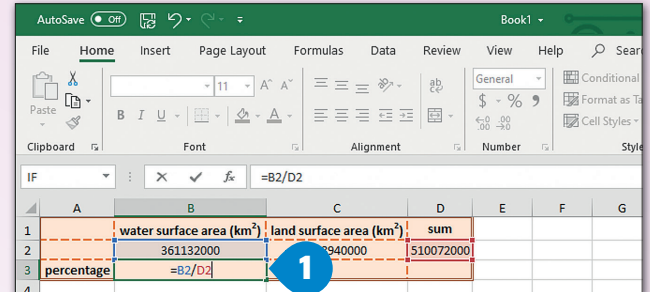
Type this table:

	A	B	C	D
1		water surface area (km <sup>2</sup> )	land surface area (km <sup>2</sup> )	sum
2		361132000	148940000	510072000
3	percentage			

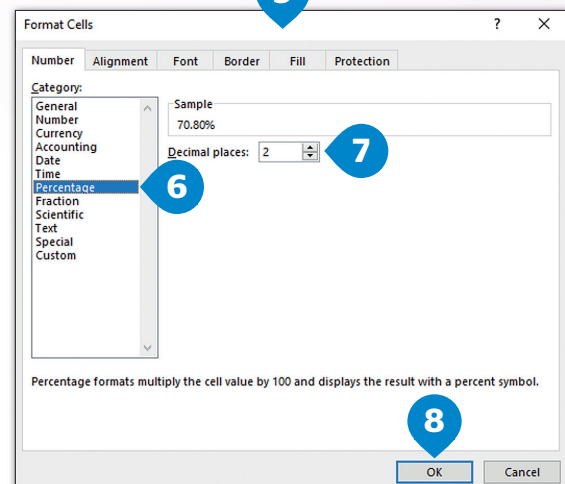
You can change the value displayed from a decimal number to a percentage by applying the percentage format. Microsoft Excel multiplies the cell by 100 and displays the result with the percentage sign.

### To transform a number to a percentage:

- > Click cell **B3** and type **=B2/D2**. ❶
- > Click cell **C3** and type **=C2/D2**. ❷
- > Select the cells which contain the numbers you want to format, in this case **B3** and **C3**. ❸
- > On the **Home** tab, in the **Number** group, click the Expand button. ❹
- > In the **Format Cells** window, click the **Number** tab. ❺
- > In the **Category** list, click **Percentage**. ❻
- > Type a number in the **Decimal places** text box, e.g. 2. ❼
- > Click **OK**. ❽
- > The numbers now appear as percentages. ❾



*You can also add percentage by clicking the Percent Style button in the Number group of the Home tab.*



	A	B	C	D
1		water surface area (km <sup>2</sup> )	land surface area (km <sup>2</sup> )	sum
2		361132000	148940000	510072000
3	percentage	70.80%	29.20%	



## Calculate powers

The **Power** function returns the result of a number raised to a given power.

Type the following table as it is below:

	A	B	C	D
1	base	power	result	
2	12	2		
3	3	5		
4	5	2		

You can use the function **POWER(x;y)** instead of using the **^** symbol.



### To calculate powers:

- > Click cell **C2**.
- > In the **Formula Bar**, type **=A2^B2**. **1**
- > Press **Enter ↵**. **2**
- > Repeat the steps for cells **C3** and **C4**. **3**

**1**

	A	B	C	D	E
1	base	power	result		
2	12	2	=A2^B2		
3	3	5			
4	5	2			

**2**

	A	B	C	D	E
1	base	power	result		
2	12	2	144		
3	3	5			
4	5	2			

**3**

	A	B	C	D	E
1	base	power	result		
2	12	2	144		
3	3	5	243		
4	5	2	25		

## hands on!

Your school did some research to find out which is the most interesting subject for students. In the questionnaire below you can see the votes for each subject. Now, using the Microsoft Excel program type the text and numbers as they are shown in the worksheet below. Calculate the total number of votes and the percentage of votes given to each subject. Fill the empty cells with the appropriate formula and format cells B4:F4 with a percentage symbol.

	A	B	C	D	E	F	G	H	I	
1	<b>Questionnaire</b>									
2	Lesson	Physics	Mathematics	English Literature	History	Chemistry		Sum		
3	Votes	192	100	178	52	100				
4	Percentage									
5										





## TASK 2

# Functions

As you know, **Microsoft Excel** can help you calculate and analyze numerical information with the help of a wide variety of functions.

Type the table:

	A	B	C
1	Mountain	Height (m)	Concatenating
2	Mount Everest	8848	
3	K2	8611	
4	Kangchenjunga	8586	
5	Lhotse	8516	
6	Makalu	845	
7	Count		
8	Date		
9			
10	!!!mountains##*&		
11			
12	This is a spreadsheet		

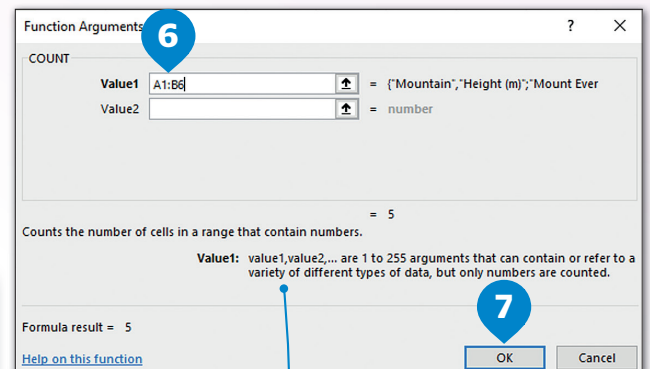
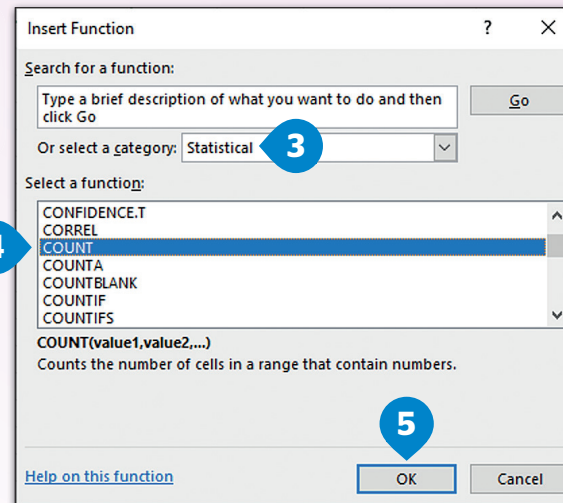
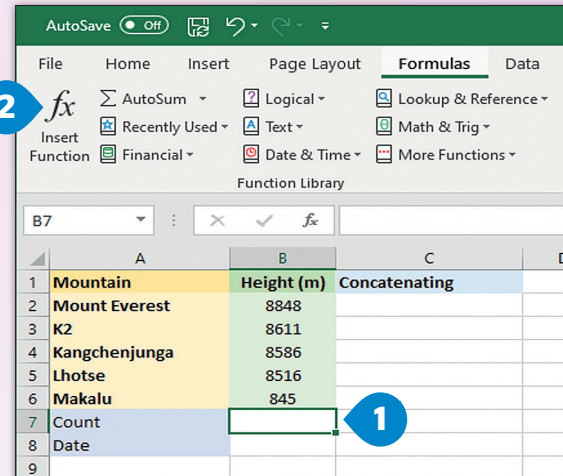
## COUNT

The **COUNT** function is used to calculate the number of cells that contain numbers.

To add **COUNT** function:

- 1 Click the cell where you want to create the function, in this example, cell **B7**.
- 2 In the **Formulas** tab, in the **Function Library** group, click **Insert Function**.
- 3 On the **Insert Function** window, in the **Or select a category** list, click **Statistical**.
- 4 Click **COUNT** and click **OK**.
- 5 In the **Function Arguments** window, in the **Value1** box, type **A1:B6**. It is the range of cells which you want to count.
- 6 Click **OK**.

	A	B	C
1	Mountain	Height (m)	Concatenating
2	Mount Everest	8848	
3	K2	8611	
4	Kangchenjunga	8586	
5	Lhotse	8516	
6	Makalu	845	
7	Count	5	
8	Date		
9			
10	!!!mountains##*&		
11			
12	This is a spreadsheet		



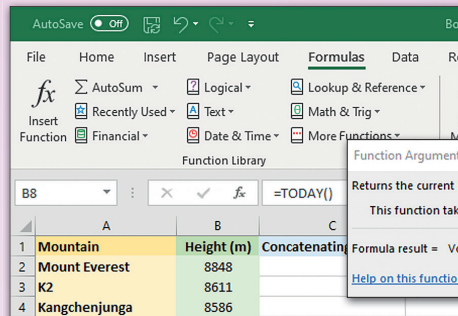
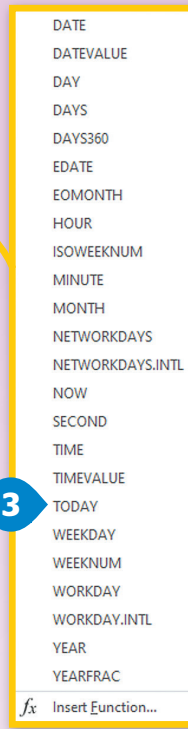
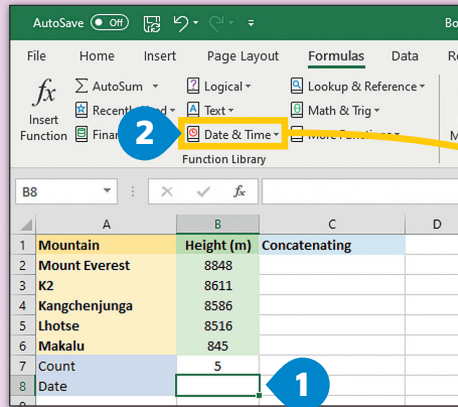
Even if you don't know the purpose of a function, you can always read the description. It explains in simple words what the selected function is going to calculate.

## TODAY

To have the current date displayed on your worksheet, use the **TODAY** function.

### To use the TODAY function:

- > Click cell **B8**, the location where you want your results to be displayed. **1**
- > On the **Formulas** tab, in the **Function Library** group, click **Date & Time**. **2**
- > In the list, click **TODAY**. **3**
- > In the **Functions Arguments** window, click **OK**. **4**

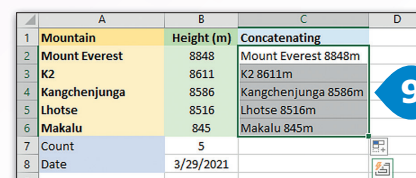
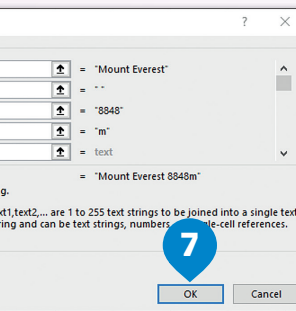
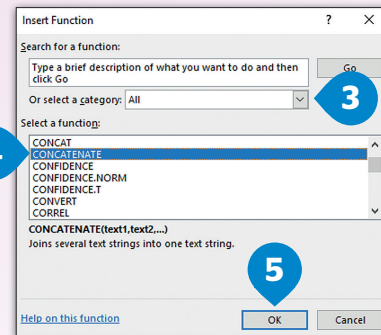
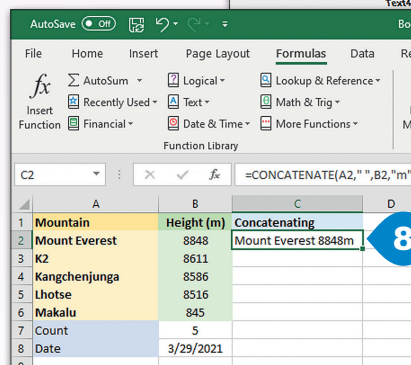
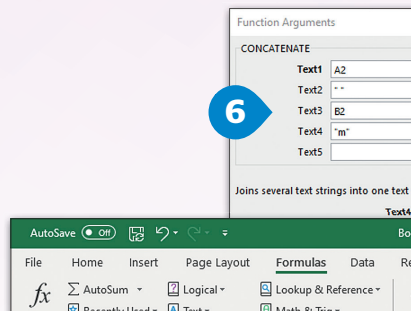
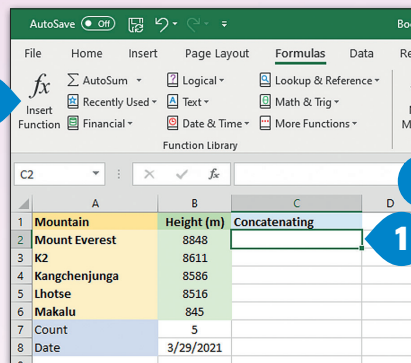


## CONCATENATE

To join cell contents, you can use the **CONCATENATE** function.

### To use the CONCATENATE function:

- > Click cell **C2**. **1**
- > On the **Formulas** tab, in the **Function Library** group, click **Insert Function**. **2**
- > In the **Insert Function** window, in the **Or select a category list**, click **All**. **3**
- > Click **CONCATENATE**. **4**
- > Click **OK**. **5**
- > In the **Function Arguments** window, in **Text1** box type **A2**, in **Text2** type **" "** and in **Text3** type **B2**, in **Text4** type **"m"**. **6**
- > Click **OK**. **7**
- > Use the **Autofill** tool **8** to complete the other rows. **9**





## LEFT, RIGHT, MID

If you want to extract a part of a string (substring) use the **LEFT**, **RIGHT** and **MID** functions.

### To use the MID function:

- > Click cell **B10**. **1**
- > On the **Formulas** tab, in the **Function Library** group, click **Text**. **2**
- > In the list, click **MID**. **3**
- > In the **Function Arguments** window, in the **Text** box type **A10**. **4** It's the cell from which you are going to extract characters.
- > In the **Start\_num** box, type **4**. **5** It's the position of the first character you want to extract.
- > In the **Num\_chars** box, type **9**. **6** You are specifying how many characters you want to extract.
- > Click **OK**. **7**

*Similarly, you can use LEFT and RIGHT functions to extract text from the left or right of a text respectively*

The screenshot shows the Excel interface with the **Formulas** tab selected. The **Text** group in the **Function Library** is expanded, and **MID** is selected. The **Function Arguments** dialog box is open, showing the following values: **Text**: A10, **Start\_num**: 4, and **Num\_chars**: 9. The spreadsheet shows the result of the formula in cell B10 as 'mountains'. A list of functions is shown on the right, with **MID** highlighted.

## SUBSTITUTE

If you want to replace part of a text in a cell, use the **SUBSTITUTE** function.

### To use the SUBSTITUTE function:

- > Click cell **A13**.
- > On the **Formulas** tab, in the **Function Library** group, click **Text**. **1**
- > In the list, click **SUBSTITUTE**. **2**
- > In the **Function Arguments** window, in the **Text** box, type **A12**. **3** It's the cell that contains the part of the text which you are going to replace.
- > In the **Old\_text**, type **spreadsheet**. **4** This is the word you want to change.
- > In the **New\_text**, type **worksheet**. **5** This is the new word.
- > Click **OK**. Your text has been replaced. **6**

The screenshot shows the Excel interface with the **Formulas** tab selected. The **Text** group in the **Function Library** is expanded, and **SUBSTITUTE** is selected. The **Function Arguments** dialog box is open, showing the following values: **Text**: A12, **Old\_text**: spreadsheet, and **New\_text**: worksheet. The spreadsheet shows the result of the formula in cell A13 as 'This is a worksheet'. A list of functions is shown on the right, with **SUBSTITUTE** highlighted.

## Multiple IF

Now that you know how to use functions, let's do something a little more complicated. Do you remember **IF**? Let's see how you can use it to get more results.

Type the following two tables in separate sheets as they are:

	A	B	C	D	E	F	G	H	I
1	Grades 1st semester								
2	Students	Orals	Test	Test grades	Results	Or	And	Check	
3	Johanson	85	82						
4	Peterson	60	55						
5	Clarkson	53	40						
6	Phils	96	95						
7	Stewarts	75	71						
8									
9	Cells greater than or equal to 60								

	A	B	C	D	E	F
1	Competition					
2		Round 1	Round 2	Medals		
3	Team 1	5	6			
4	Team 2	9	9			
5	Team 3	7	8			
6	Team 4	4	5			
7						
8						
9						

Let's say you want to work with students' grades.

If a student has a score of more than 90, then he/she gets an "A", otherwise (= else if) if he/she has more than 70 then he/she will get a "B", otherwise (= else if) if he/she has more than 60 then he will get a "C". Below 60 (= else) the student has the indication that he/she has to "Work Harder."

### To add this simple Multiple IF:

- > Click cell **D3**.
- > In the **Formula** bar type `=IF(C3>=85,"A",IF(C3>=70,"B",IF(C3>=55,"C","Work Harder")))` **1**
- > Press **Enter ↵**. **2**
- > Click the fill handle **3** and use the **Autofill** tool to fill the rest of the cells with data. **4**

Book1 - Excel

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Clipboard Font Alignment Number Styles

Formula bar: `=IF(C3>=85,"A",IF(C3>=70,"B",IF(C3>=55,"C","Work Harder")))` **1**

	A	B	C	D	E	F	G	H	I
1	Grades 1st semester								
2	Students	Orals	Test	Test grades	Results	Or	And	Check	
3	Johanson	85	82						
4	Peterson	60	55						
5	Clarkson	53	40						
6	Phils	96	95						
7	Stewarts	75	71						
8									
9	Cells greater than or equal to 60								
10									

Remember to close as many parentheses as you open.

Microsoft Excel 2007 and later versions allow you up to 67 levels of Multiple IF.



D3: `=IF(C3>=85,"A",IF(C3>=70,"B",IF(C3>=55,"C","Work Harder")))`

	A	B	C	D	E	F	G	H	I
1	Grades 1st semester								
2	Students	Orals	Test	Test grades	Results	Or	And	Check	
3	Johanson	85	82	B					
4	Peterson	60	55	C					
5	Clarkson	53	40	Work Harder					
6	Phils	96	95	A					
7	Stewarts	75	71	B					
8									
9	Cells greater than or equal to 60								

	A	B	C	D	E	F	G	H	I
1	Grades 1st semester								
2	Students	Orals	Test	Test grades	Results	Or	And	Check	
3	Johanson	85	82	A					
4	Peterson	60	55	C					
5	Clarkson	53	40	Work Harder					
6	Phils	96	95	A					
7	Stewarts	75	71	B					
8									
9	Cells greater than or equal to 60								

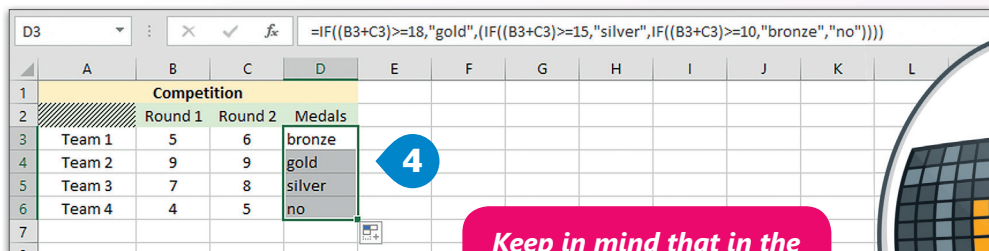
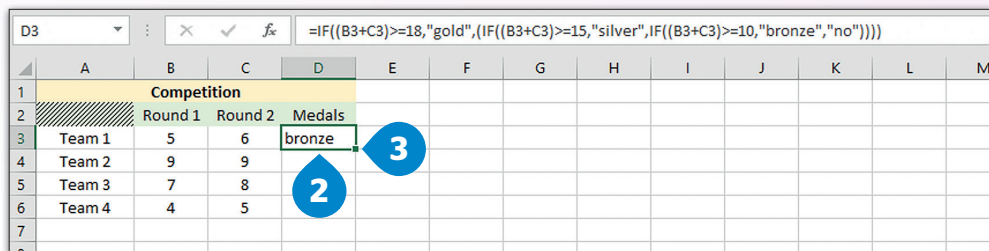
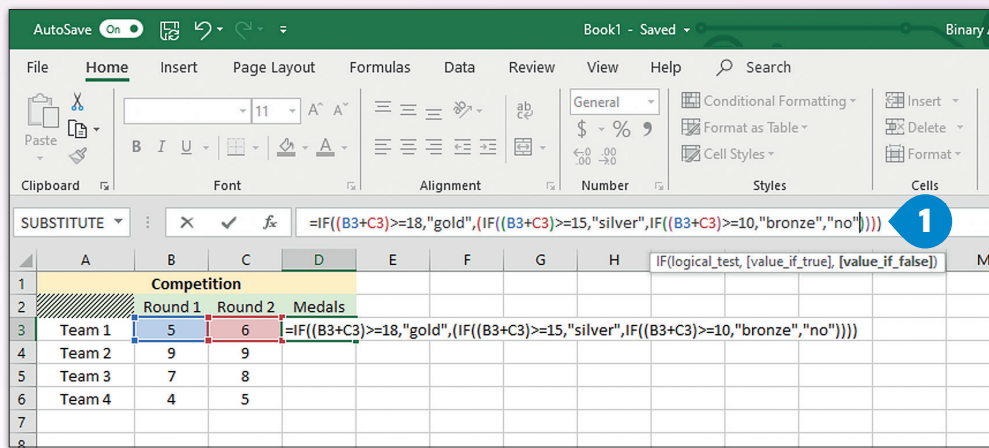


To make multiple **IF** a little more complex than the previous one, let's add a multiple **IF** on cell D3 of the sheet2 which will show the following:

If the total score is equal to or greater than 18, then the team will take a gold medal, when (=else if) the score is more than 15, then the team will take a silver medal, when (=else if) the score is more than 10, then the team will take a bronze medal, and if it's under 10 (=else), the team will not take a medal.

### To add Multiple IF:

- > Click cell **D3** of **sheet2**.
- > In the **Formula** bar, type **=IF((B3+C3)>=18,"gold",(IF((B3+C3)>=15,"silver",IF((B3+C3)>=10,"bronze","no"))))**. ❶
- > Press **Enter ↵**. ❷
- > Click the fill handle ❸ and use the **Autofill** tool to fill the rest of the cells. ❹



*Keep in mind that in the criteria boxes you can type a single word or a small phrase, or you can do complex calculations and even use other functions as well.*



Finally, let's add a multiple **IF** that makes use of the **AVERAGE** formula to cell **E3** of **sheet1**, which will show the following:

If the average grade is more than 80, then the student will get the description "excellent student", when (=else if) the average grade is more than 60, then he/she will get the description "mediocre student", otherwise (=else if) he/she will get the description "poor student".

To combine a multiple **IF** statement with the **AVERAGE** function:

- > Click cell **E3**.
- > In the **Formula** bar, type **=IF(AVERAGE(B3:C3)>85,"excellent student",(IF(AVERAGE(B3:C3)>60,"mediocre student","poor student")))**. **1**
- > Press **Enter**. **2**
- > Click the fill handle **3** and use the **Autofill** tool to fill the rest of the cells. **4**

Formula bar: `=IF(AVERAGE(B3:C3)>85,"excellent student",(IF(AVERAGE(B3:C3)>60,"mediocre student","poor student")))` **1**

Grades 1st semester							
Students	Orals	Test	Test grades	Results	Or	And	Check
Johanson	85	82	B				
Peterson	60	55	C				
Clarkson	53	40	Work Harder				
Phils	96	95	A				
Stewarts	75	71	B				

Formula bar: `=IF(AVERAGE(B3:C3)>85,"excellent student",(IF(AVERAGE(B3:C3)>60,"mediocre student","poor student")))`

Grades 1st semester							
Students	Orals	Test	Test grades	Results	Or	And	Check
Johanson	85	82	B	mediocre student			
Peterson	60	55	C				
Clarkson	53	40	Work Harder				
Phils	96	95	A				
Stewarts	75	71	B				

Formula bar: `=IF(AVERAGE(B3:C3)>85,"excellent student",(IF(AVERAGE(B3:C3)>60,"mediocre student","poor student")))`

Grades 1st semester							
Students	Orals	Test	Test grades	Results	Or	And	Check
Johanson	85	82	B	mediocre student			
Peterson	60	55	C	poor student			
Clarkson	53	40	Work Harder	poor student			
Phils	96	95	A	excellent student			
Stewarts	75	71	B	mediocre student			

### BE SAFE

To protect your neck or back from injury, remember to sit properly when you work on your computer, especially when it's for many hours. "Mens sana in corpore sano" as the ancient Roman and Greek philosophers said - a healthy mind in a healthy body.





## IF and AND together

**IF** the orals grades are greater than or equal to 55 **AND** the test grades are greater than or equal to 55, then the student will pass, otherwise, the student will fail.

To combine a multiple IF with AND:

- > Click **H3**.
- > In the **Formula** bar, type **=IF((AND(B3>=55,C3>=55)),"pass", "fail")**. **1**
- > Press **Enter ↵**. **2**
- > Click the fill handle **3** and use the **Autofill** tool to fill the rest of the cells. **4**

Grades 1st semester							
Students	Orals	Test	Test grades	Results	Or	And	Check
Johanson	85	82	B	mediocre student	TRUE	TRUE	"fail"
Peterson	60	55	C	poor student	TRUE	FALSE	
Clarkson	53	40	Work Harder	poor student	FALSE	FALSE	
Phils	96	95	A	excellent student	TRUE	TRUE	
Stewarts	75	71	B	mediocre student	TRUE	TRUE	

Grades 1st semester							
Students	Orals	Test	Test grades	Results	Or	And	Check
Johanson	85	82	B	mediocre student	TRUE	TRUE	pass
Peterson	60	55	C	poor student	TRUE	FALSE	
Clarkson	53	40	Work Harder	poor student	FALSE	FALSE	
Phils	96	95	A	excellent student	TRUE	TRUE	
Stewarts	75	71	B	mediocre student	TRUE	TRUE	

Grades 1st semester							
Students	Orals	Test	Test grades	Results	Or	And	Check
Johanson	85	82	B	mediocre student	TRUE	TRUE	pass
Peterson	60	55	C	poor student	TRUE	FALSE	pass
Clarkson	53	40	Work Harder	poor student	FALSE	FALSE	fail
Phils	96	95	A	excellent student	TRUE	TRUE	pass
Stewarts	75	71	B	mediocre student	TRUE	TRUE	pass

### SMART TIP

Many countries use a comma as a decimal separator, while others use a dot. Find which decimal separator is used in your country here: [http://en.wikipedia.org/wiki/Decimal\\_mark](http://en.wikipedia.org/wiki/Decimal_mark)

# COUNTIF

If you have a table and you want to find out how many cells have a value of more than 60, then you can use the **COUNTIF** function.

## To use the COUNTIF function:

- > Click the cell you want to add your function to, in this example, cell **B9**.
- > On the **Formulas** tab in the **Function Library** group, click **Insert Function**. **1**
- > In the **Or select a category** list, click **Statistical**. **2**
- > Click **COUNTIF**. **3**
- > In the **Function Arguments** window, in the **Range** box, type **B3:C7** and in the **Criteria**, type **>=60**. **4**
- > Click **OK**. **5**

The screenshot shows the Excel interface with the **Formulas** tab selected. The **Function Library** group is expanded, and the **Insert Function** button is highlighted. The **Insert Function** dialog box is open, showing the **Statistical** category selected. The **COUNTIF** function is chosen. The **Function Arguments** dialog box is also open, showing the **Range** as **B3:C7** and the **Criteria** as **>=60**. The **Formula result** is displayed as **=COUNTIF(B3:C7,">=60")**.

The screenshot shows the final result of the **COUNTIF** function. The formula bar displays **=COUNTIF(B3:C7,">=60")** and the result in cell **B9** is **7**. The spreadsheet shows a table with columns for **Students**, **Orals**, **Test**, **Test grades**, **Results**, **Or**, **And**, and **Check**.

Students	Orals	Test	Test grades	Results	Or	And	Check
Johanson	85	82	B	mediocre student	TRUE	TRUE	pass
Peterson	60	55	C	poor student	TRUE	FALSE	pass
Clarkson	53	40	Work Harder	poor student	FALSE	FALSE	fail
Phils	96	95	A	excellent student	TRUE	TRUE	pass
Stewarts	75	71	B	mediocre student	TRUE	TRUE	pass

## hands on!

Type the following table and fill in the cells with the appropriate functions. In cell I3 use the **AND** function to check if cells C3 to E3 have values less than or equal to 75 and in cell H3 to find out how many cells have a value of more than 65.

	A	B	C	D	E	F	G	H	I
1	Results								
2	Last Name	First Name	1 <sup>st</sup> semester	2 <sup>nd</sup> semester	3 <sup>rd</sup> semester	Average	Full name	Count	Check
3	Philips	john	86	88	89				
4	Papas	Alex	52	56	55				
5	Morrison	Jim	86	90	96				
6	James	Tim	56	60	75				
7	Peterson	Anna	68	67	65				
8	Adams	Tom	67	73	74				
9									



### TASK 3

# References

As you know, a cell takes its name from the column letter and row number to which it belongs. A cell reference is the “address” of the cell and identifies its location. When you want to copy the same formula to new cells, you can use the relative and absolute references. See how below!

## Relative Reference

Relative Reference is the cell reference. When you copy a cell that has a formula, the formula changes automatically. The change depends on the relative position of rows and columns.

For example, type the contents of columns A and B below and in cell **C2**, type **=A2\*B2**.

If you copy the formula **A2\*B2** to cell **C3**, it will become **A3\*B3**.

	A	B	C	D	E
1			Multiple		
2	12	4	=A2*B2		
3	17	5			
4	16	85			
5	6	16			

## Absolute Reference

Sometimes you want to keep a cell, a row or a column constant when copying a formula. You have to declare this when you create the formula by using the **\$** (dollar sign). This way, you create an absolute reference which doesn't change when it's copied or "filled".

- \$E\$1** The cell doesn't change when it is copied. Both the column and the row remain the same.
- \$E1** The row changes when it is copied, but the column remains the same.
- E\$1** The column changes when it is copied, but the row remains the same.

For example, type the contents of columns A and B below and in cell **C2**, type **=\$D\$1\*B2**.

	A	B	C	D	E
1	Products	Cost	Tax	25%	
2	Product 1		=D\$1*B2		
3	Product 2	25			
4	Product 3	18			
5	Product 4	125			
6	Product 5	68			

Notice that when the number of the row changes, the cell that has the \$ sign stays the same.

If you fill the formula **\$D\$1\*B2** into column C, the formula will change to become **\$D\$1\*B3**, **\$D\$1\*B4**, etc.

### SMART TIP

An easy way to remember how to use the dollar sign is to think about how you want to use the Autofill tool. If you want to use it horizontally, then type the dollar sign in front of the letter (column). If you want to use it vertically, type it in front of the number (row).

Let's see another example.  
Type the following table:

	A	B	C	D	E	F	G	H
1						Ticket	€ 12.00	
2	Visitors							
3	Museums	August	September	October	November	December	Sum Visitors	Income
4	Louvre Museum	45485	65635	52000	12500	62000	237620	
5	Army Museum	45632	45635	42000	21000	56204	210471	
6	Maillo Museum	25246	53543	12520	14002	25021	130332	
7	The Advertising Museum	12415	15425	42510	18002	12000	100352	
8	Museum of Naive Art	15832	14585	15200	16012	17000	78629	
9	Cité des Sciences et de l'Industrie	15352	15325	16000	15004	16200	77881	

To create and copy a formula using references:

- > Click cell **H4**.
- > In the **Formula** bar, type the formula **=G4\*\$G\$1**. 1
- > Press **Enter**. 2
- > Click the cell **H4** again and use the **Autofill** tool. 3

You can use the **Copy, Paste** commands as well, instead of the **Autofill** tool.

COUNTIF : X ✓ fx =G4\*\$G\$1 1

	A	B	C	D	E	F	G	H
1						Ticket	€ 12.00	
2	Visitors							
3	Museums	August	September	October	November	December	Sum Visitors	Income
4	Louvre Museum	45485	65635	52000	12500	62000	237620	=G4*\$G\$1
5	Army Museum	45632	45635	42000	21000	56204	210471	
6	Maillo Museum	25246	53543	12520	14002	25021	130332	
7	The Advertising Museum	12415	15425	42510	18002	12000	100352	
8	Museum of Naive Art	15832	14585	15200	16012	17000	78629	
9	Cité des Sciences et de l'Industrie	15352	15325	16000	15004	16200	77881	

H4 : X ✓ fx =G4\*\$G\$1

	A	B	C	D	E	F	G	H
1						Ticket	€ 12.00	
2	Visitors							
3	Museums	August	September	October	November	December	Sum Visitors	Income
4	Louvre Museum	45485	65635	52000	12500	62000	237620	€ 2,851,440.00
5	Army Museum	45632	45635	42000	21000	56204	210471	€ 2,525,652.00
6	Maillo Museum	25246	53543	12520	14002	25021	130332	€ 1,563,984.00
7	The Advertising Museum	12415	15425	42510	18002	12000	100352	€ 1,204,224.00
8	Museum of Naive Art	15832	14585	15200	16012	17000	78629	€ 943,548.00
9	Cité des Sciences et de l'Industrie	15352	15325	16000	15004	16200	77881	€ 934,572.00

H4 : X ✓ fx =G4\*\$G\$1

	A	B	C	D	E	F	G	H
1						Ticket	€ 12.00	
2	Visitors							
3	Museums	August	September	October	November	December	Sum Visitors	Income
4	Louvre Museum	45485	65635	52000	12500	62000	237620	€ 2,851,440.00
5	Army Museum	45632	45635	42000	21000	56204	210471	€ 2,525,652.00
6	Maillo Museum	25246	53543	12520	14002	25021	130332	€ 1,563,984.00
7	The Advertising Museum	12415	15425	42510	18002	12000	100352	€ 1,204,224.00
8	Museum of Naive Art	15832	14585	15200	16012	17000	78629	€ 943,548.00
9	Cité des Sciences et de l'Industrie	15352	15325	16000	15004	16200	77881	€ 934,572.00

To create and copy a formula using row absolute reference:

- > Type this table and click **E2**. 1
- > In the **Formula** bar, type **=D2\*B\$8**. 2
- > Press **Enter** to calculate the formula. 3
- > Click cell **E2** and **Autofill** cells **E3:E6**. 4

You can click the cell you want to lock and press **F4** to apply an absolute reference.

E2 : X ✓ fx =D2\*B\$8

	A	B	C	D	E	F
1		Sales	Cost Per Item	Value	Discount	
2	Product 1	125	25	3125	312.5	
3	Product 2	156	85	13260	1326	
4	Product 3	25	62	1550	155	
5	Product 4	154	56	8624	862.4	
6	Product 5	255	25	6375	637.5	
7						
8	Discount	10%				

E2 : X ✓ fx

	A	B	C	D	E	F
1		Sales	Cost Per Item	Value	Discount	
2	Product 1	125	25	3125		
3	Product 2	156	85	13260		
4	Product 3	25	62	1550		
5	Product 4	154	56	8624		
6	Product 5	255	25	6375		
7						
8	Discount	10%				

IF : X ✓ fx =D2\*B\$8 2

	A	B	C	D	E	F
1		Sales	Cost Per Item	Value	Discount	
2	Product 1	125	25	3125	=D2*B\$8	
3	Product 2	156	85	13260		
4	Product 3	25	62	1550		
5	Product 4	154	56	8624		
6	Product 5	255	25	6375		
7						
8	Discount	10%				

E2 : X ✓ fx =D2\*B\$8

	A	B	C	D	E	F
1		Sales	Cost Per Item	Value	Discount	
2	Product 1	125	25	3125	312.5	
3	Product 2	156	85	13260		
4	Product 3	25	62	1550		
5	Product 4	154	56	8624		
6	Product 5	255	25	6375		
7						
8	Discount	10%				





To create and copy a formula using column absolute reference:

- > Type this table and click **B5**. 1
- > In the **Formula** bar, type **=B4\*\$I1**. 2
- > Press **Enter**. 3
- > Use the **Autofill** tool to complete the table. 4

	A	B	C	D	E	F	G	H	I	J
1		Product 1	Product 2	Product 3	Product 4	Product 5		Discount	10%	
2	Sales	125	156	25	154	255				
3	Cost Per Item	25	85	62	56	25				
4	Value	3125	13260	1550	8624	6375				
5	Discount									

	A	B	C	D	E	F	G	H	I	J
1		Product 1	Product 2	Product 3	Product 4	Product 5		Discount	10%	
2	Sales	125	156	25	154	255				
3	Cost Per Item	25	85	62	56	25				
4	Value	3125	13260	1550	8624	6375				
5	Discount									

	A	B	C	D	E	F	G	H	I	J
1		Product 1	Product 2	Product 3	Product 4	Product 5		Discount	10%	
2	Sales	125	156	25	154	255				
3	Cost Per Item	25	85	62	56	25				
4	Value	3125	13260	1550	8624	6375				
5	Discount	312.5								

	A	B	C	D	E	F	G	H	I	J
1		Product 1	Product 2	Product 3	Product 4	Product 5		Discount	10%	
2	Sales	125	156	25	154	255				
3	Cost Per Item	25	85	62	56	25				
4	Value	3125	13260	1550	8624	6375				
5	Discount	312.5	1326	155	862.4	637.5				

## IF and references

It's time to do something a little more difficult. You are going to combine the **IF** function with an absolute reference. Before you start, let's find the **Total Value**, which is the **Value** minus the **Discount** and find the **Average Value** in cell **F8**.

**IF** the **Total Value** is more than the **Average Value**, then it is above average, if it is less (**ELSE**) then it is below average.

To combine IF with references:

- > Click **G2**. 1
- > On the **Formulas** tab, in the **Function Library** group, click **Insert Function**. 2
- > In the **Insert Function** window, in the **Or select a category list**, click **All**. 3
- > Click **IF**. 4
- > In the **Function Arguments** window, type **F2>\$F\$8** in the **Logical\_test** box. 5
- > In the **Value\_if\_true**, type **"Above Average"**. 6
- > In the **Value\_if\_false** type **"Below Average"**. 7
- > Click **OK**. 8
- > Click cell **G2** and drag the fill handle to fill cells **G3:G6**. 9

	A	B	C	D	E	F	G	H
1		Sales	Cost Per Item	Value	Discount	Total Value	Conclusion	
2	Product 1	125	25	3125	312.5	2812.5		
3	Product 2	156	85	13260	1326	11934		
4	Product 3	25	62	1550	155	1395		
5	Product 4	154	56	8624	862.4	7761.6		
6	Product 5	255	25	6375	637.5	5737.5		
7								
8	Discount	10%			Average	5928.12		

Insert Function

Search for a function:

Type a brief description of what you want to do and then click Go

Or select a category: All

Select a function:

HYPGEOMDIST  
IF  
IFERROR  
IFNA  
IFS  
IMABS  
IMAGINARY

IF(logical\_test,value\_if\_true,value\_if\_false)  
Checks whether a condition is met, and returns one value if TRUE, and another value if FALSE.

OK Cancel

*The functions are displayed in alphabetical order.*

Function Arguments

IF

Logical\_test: F2>\$F\$8 = FALSE

Value\_if\_true: "Above Average" = "Above Average"

Value\_if\_false: "Below Average" = "Below Average"

Whether a condition is met, and returns one value if TRUE, and another value if FALSE.

Value\_if\_true: the value that is returned if Logical\_test is TRUE. If omitted, FALSE is returned.

Value\_if\_false: the value that is returned if Logical\_test is FALSE. If omitted, FALSE is returned.

result = Below Average

OK Cancel

	A	B	C	D	E	F	G	H
1		Sales	Cost Per Item	Value	Discount	Total Value	Conclusion	
2	Product 1	125	25	3125	312.5	2812.5	Below Average	
3	Product 2	156	85	13260	1326	11934	Above Average	
4	Product 3	25	62	1550	155	1395	Below Average	
5	Product 4	154	56	8624	862.4	7761.6	Above Average	
6	Product 5	255	25	6375	637.5	5737.5	Below Average	
7								
8	Discount	10%			Average	5928.12		
9								

## Common error messages

Sometimes when you type a formula, you may make mistakes. Error messages appear on your worksheet.

	A	B	C	D	E	F	G	H	I	J	K
1		Sales	Cost Per Item	Value	Discount	Total Value	Conclusion				
2	Product 1	125	25	3125	312.5	2812.5	Below Average				
3	Product 2	156	85	#####	1326	11934	Above Average				
4	Product 3	25	62	1550	155	1395	Below Average				
5	Product 4	154	56	8624	862.4	7761.6	Above Average				
6	Product 5	255	25	6375	637.5	5737.5	Below Average				
7											
8	Discount	10%			Average	5928.12					
9											
10	Sum										#VALUE!

### The most common error messages are:

#####	This "message" appears when a column with numerical contents is not wide enough to display all of its content. You can correct it by increasing the width of the column to fit everything correctly.
#DIV/0!	This error message appears when you divide something by 0. You can correct it by changing the divisor in the function or formula so it is not zero or blank.
#NAME?	This error message appears when you have typed a wrong formula and Microsoft Excel cannot recognize it. You can correct it by typing the formula's correct name. In the example above, cell B7 displays this error.
#VALUE!	This error appears when a mathematical formula includes cells that contain text as well as numbers. You can correct it by removing references to cells containing text.

You can correct the mistake by clicking the button that appears next to the cell that displays the message and choosing Edit in Formula bar.



## hands on!

Type the following table and fill in the cells with the appropriate function. In cells 14:10, remember to use a function with an absolute reference.

	A	B	C	D	E	F	G	H	I	J
1						Ticket	\$ 7,00			
2						City Cinema				
3	Movies	January	February	March	April	May	Sum Viewers	Average Viewers	Income	
4	Adventures	36524	15420	52000	82541	21115				
5	Comedies	45858	36452	42000	45452	20365				
6	Action	36458	52645	12520	15234	35122				
7	Romance	31092	15345	42510	25100	15334				
8	Science Fiction	26734	56353	15200	24542	15454				
9	Crime	15856	41312	16000	35244	85600				
10	Drama	15455	15205	15552	455	15485				
11										





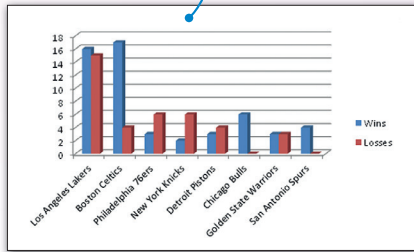
## TASK 4

# Advanced charts

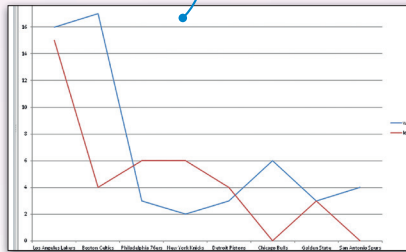
## Chart types

To make your data presentations more lively and interesting, you can use charts and graphs.

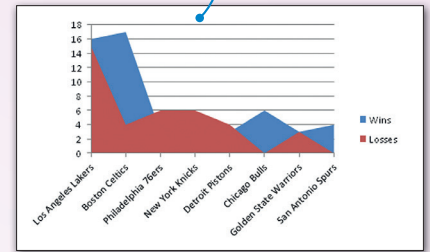
The **Column/Bar Chart** is used to illustrate comparisons between a series of data. In a column chart, categories appear horizontally (x-axis) and numeric values appear vertically (y-axis). The opposite happens in a bar chart which is one of the most commonly used chart types.



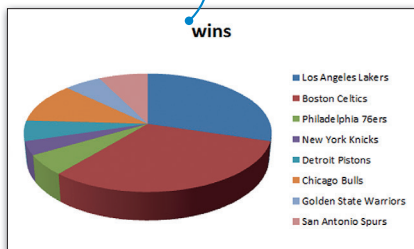
The **Line Chart** is used to display trends. It shows the changes in data over a period of time. Numeric values always appear vertically (y-axis) and time horizontally (x-axis). It is suitable for showing data for a large number of groups.



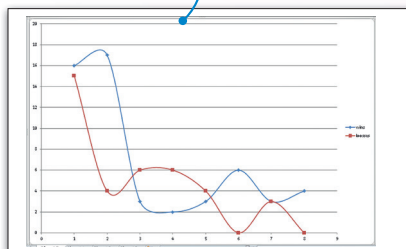
The **Area Chart** is like a Line Chart except that the area below the plotted line is filled in with color. It is used to display trends over time or some other category and it is suitable for showing data for a limited number of groups.



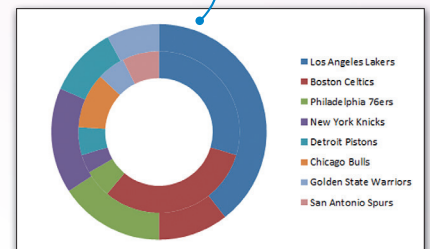
The **Pie Chart** is used to display only one series of data. It shows the relationship of the parts to the whole. You have to pay attention. It is suitable for showing data for one group.



The **Scatter Chart** is used to display the values of two series and to compare them over time. It is like a line graph, except that the plotted line shows data points. It is suitable for showing the relationship between two variables.



The **Doughnut Chart** is used to display data as doughnut slices and is similar to a Pie Chart.



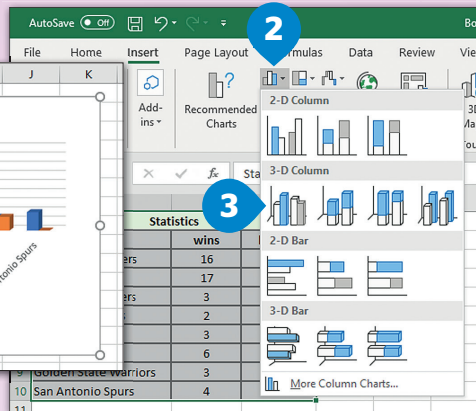
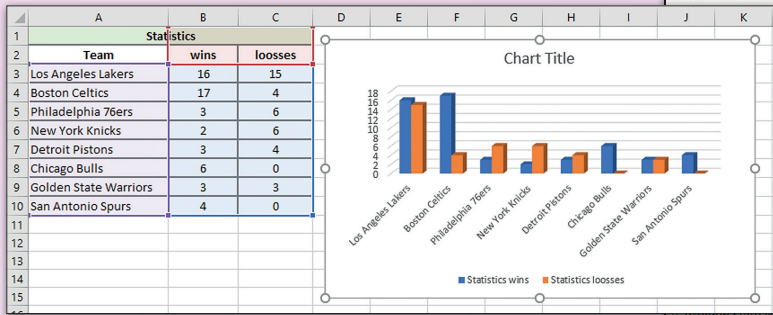
BE SAFE

Don't forget to save your work frequently and always backup your files to another place!

### To add a chart:

- > Type this **1** and select cells **A2:C10**.
- > On the **Insert** tab, in the **Charts** group, click **Column**. **2**
- > In the list of column chart sub-types, click the one you like. **3**

Team	wins	looses
Los Angeles Lakers	16	15
Boston Celtics	17	4
Philadelphia 76ers	3	6
New York Knicks	2	6
Detroit Pistons	3	4
Chicago Bulls	6	0
Golden State Warriors	3	3
San Antonio Spurs	4	0

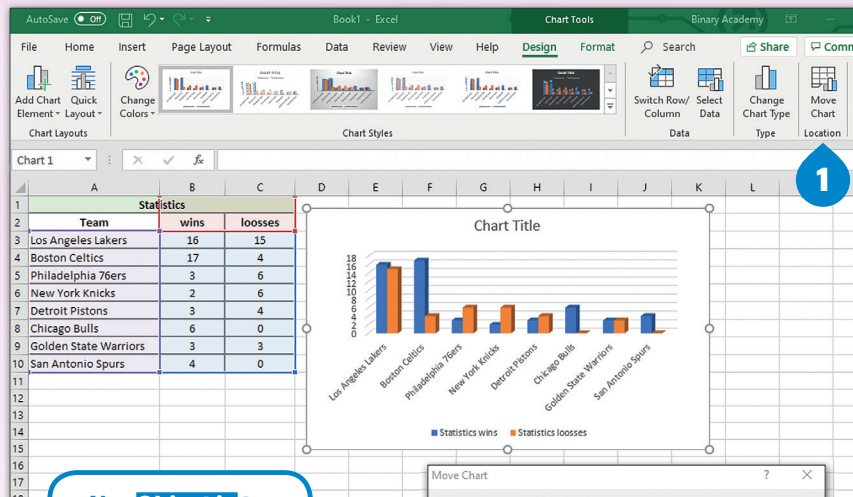


### Modify chart

After you create a chart, you can modify it. For instance, you may want to change its titles or its type.

#### To move the chart:

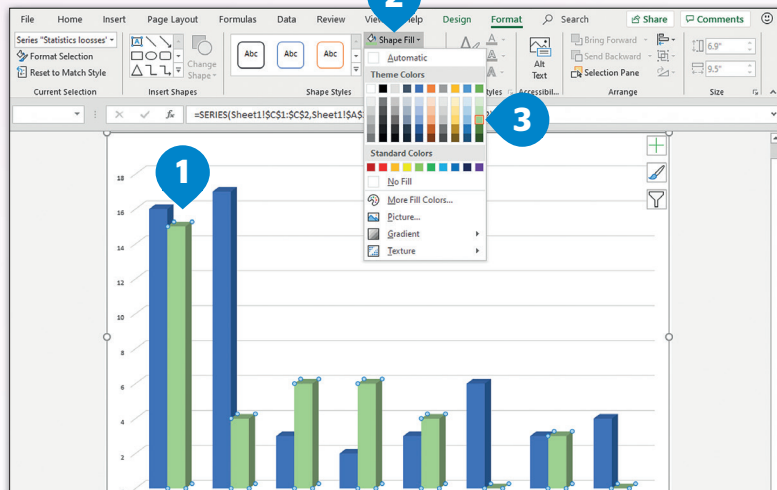
- > Click the **Chart**.
- > On the **Design** tab in the **Location** group, click **Move Chart**. **1**
- > You can move your chart to a new sheet or wherever you want. **2**



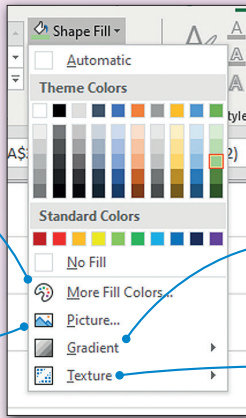
Use **Object in** to move your chart as an object to an existing sheet.

#### To change the Shape Fill of the chart:

- > Click the shape you want to make changes to. For example select "wins". **1**
- > On the **Format** tab, in the **Shape Styles** group, click **Shape Fill**. **2**
- > Click the color of your choice. **3**







Use **More Fill Colors...** when you want to fill the shape with a color which is not available in the **Theme Colors** list.

Use **Picture** when you want to fill the shape with a picture.

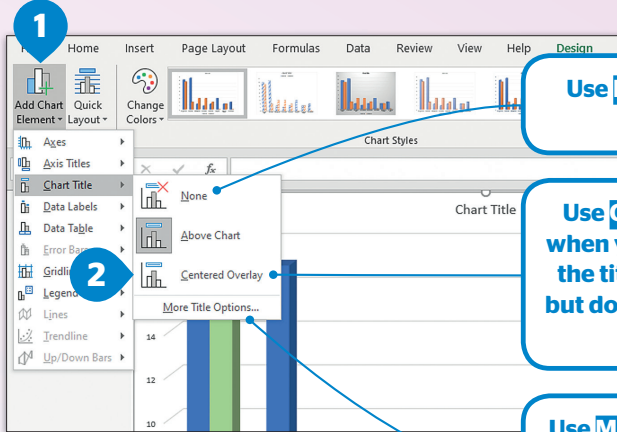
You can choose to have your chart on a new sheet. In that case your chart will take up the whole spreadsheet.

Use **Gradient** when you want to fill the shape with a gradient color.

Use **Texture** when you want to use a texture fill.

### To change the titles:

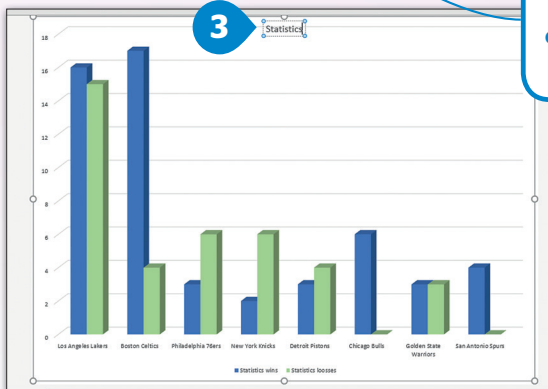
- > Click the **Chart** to select it.
- > On the **Design** tab, in the **Chart Layouts** group, click **Add Chart Element**. **1**
- > Click **Chart Title** and then select **Centered Overlay**. **2**
- > Double-click the **Chart Title**, delete the words and type **Statistics**. **3**
- > Click anywhere outside the chart title.



Use **None** if you don't want a title.

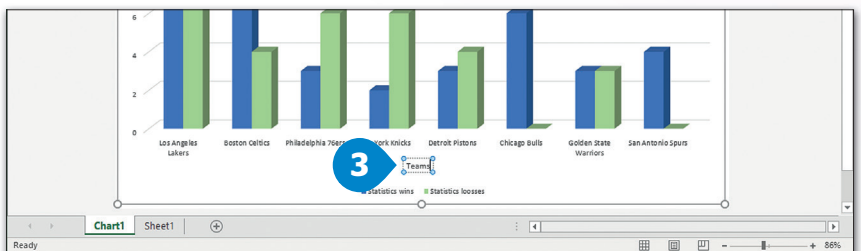
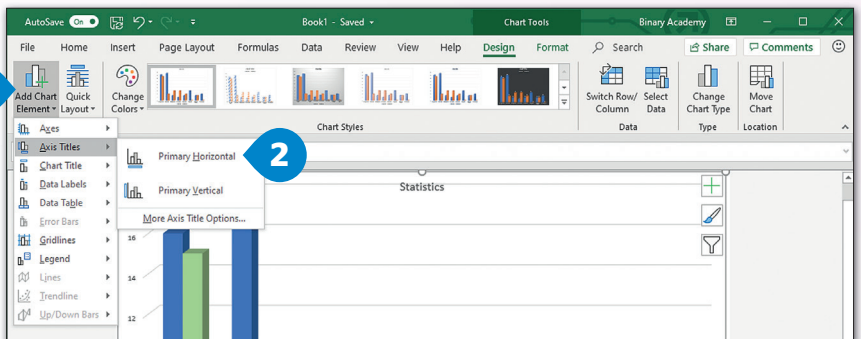
Use **Centered Overlay** when you want to center the title over the chart, but don't want to change the size.

Use **More Title Options...** when you want more options about filling, line style, etc.



### To change the format of an axis:

- > On the **Design** tab in the **Chart Layouts** group, click **Add Chart Element**. **1**
- > In the **Axis Title** pop-out menu, click **Primary Horizontal**. **2**
- > Double-click **Axis Title**, delete the words and type **Teams**. **3**
- > Click anywhere outside the axis title.





## Mini chart

Sometimes you just want a graphical representation of your data inside a chart. To do this, you can use mini charts.

### To add a mini chart:

- > Select the cells you want your mini chart to be displayed in. For example, select **D3:D10**. **1**
- > On the **Insert** tab, in the **Sparklines** group, click **Line**. **2**
- > In the **Create Sparklines** window, in the **Data Range** box, type **B3:C10**. **3** This contains the data you want to represent in a graph.
- > Click **OK**. **4**

Team	wins	looses
Los Angeles Lakers	16	15
Boston Celtics	17	4
Philadelphia 76ers	3	6
New York Knicks	2	6
Detroit Pistons	3	4
Chicago Bulls	6	0
Golden State Warriors	3	3
San Antonio Spurs	4	0

### To modify a mini chart:

- > Select the cells **D3:D10** where the mini chart is. **1**
- > On the **Design** tab, in the **Style** group, click **Sparkline Color** **2** and click the color you want. **3**

Team	wins	looses
Los Angeles Lakers	16	15
Boston Celtics	17	4
Philadelphia 76ers	3	6
New York Knicks	2	6
Detroit Pistons	3	4
Chicago Bulls	6	0
Golden State Warriors	3	3
San Antonio Spurs	4	0

You can also click **Marker Color** to color your markers.

### SMART TIP

Always double-check the formulas in your spreadsheet. A tiny mistake may cause a huge problem!

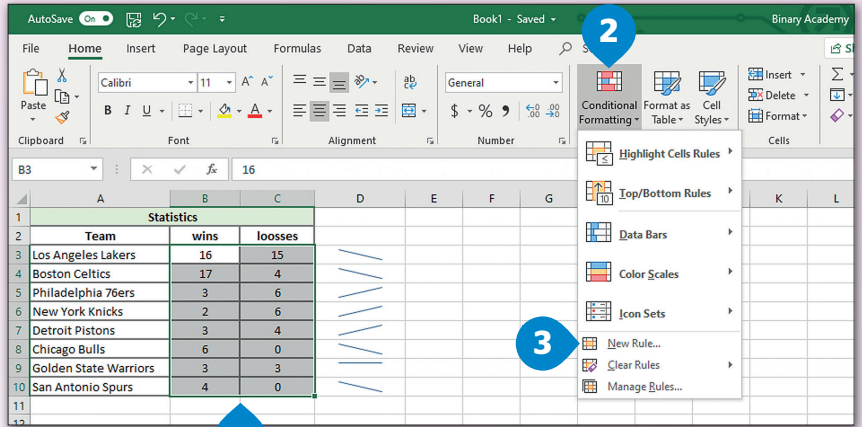


## Conditional formatting

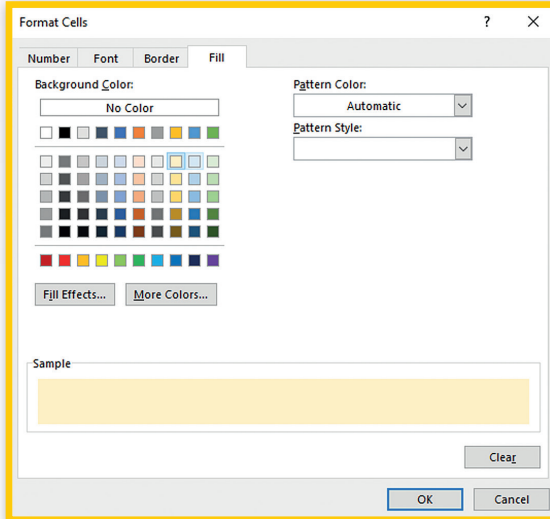
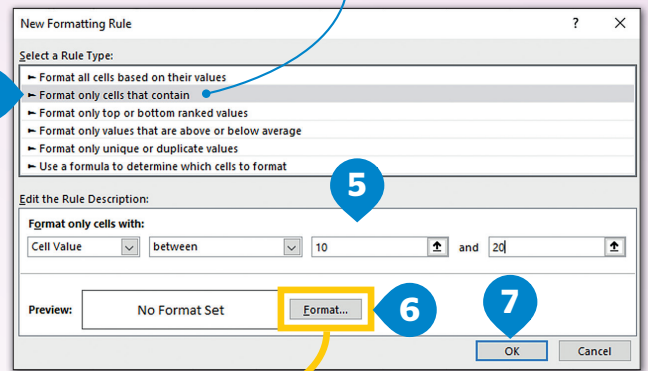
When you want to change the way your cells look based on what they contain, you can apply conditional formatting. First, you specify certain conditions, and your cell appearance will change to meet these conditions.

### To apply Conditional Formatting:

- > Select the cells which you want to apply conditional formatting to, for example **B3 to C10**. **1**
- > On the **Home** tab, in the **Styles** group, click **Conditional Formatting**. **2**
- > Click **New Rule**. **3**
- > You can select the criteria you want to use, for example click **Format only cells that contain**. **4**
- > Type **10 to 20**. **5**
- > Click **Format** and format the cells accordingly. **6**
- > Click **OK**. **7**



Use **Format only cells that contain** to create rules and format your cells based on these.



	A	B	C	D
1	Statistics			
2	Team	wins	loosess	
3	Los Angeles Lakers	16	15	////
4	Boston Celtics	17	4	////
5	Philadelphia 76ers	3	6	////
6	New York Knicks	2	6	////
7	Detroit Pistons	3	4	////
8	Chicago Bulls	6	0	////
9	Golden State Warriors	3	3	////
10	San Antonio Spurs	4	0	////
11				

## hands on!

Type the following table; add a pie and a column chart. Change the fill colors and the axis names in the chart.

	A	B	C
	Pollutant	Emissions in 2007 (Ktonnes)	Emissions ceiling target in 2010 (Ktonnes)
1			
2	NOx	1486	1167
3	SO2	591	585
4	NMVOcs	942	12
5	NH3	289	297
6			



## TASK 5

# Import and export data

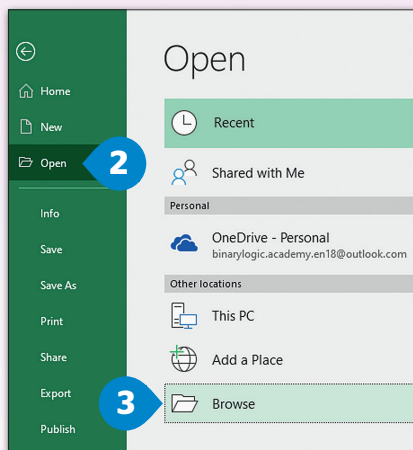
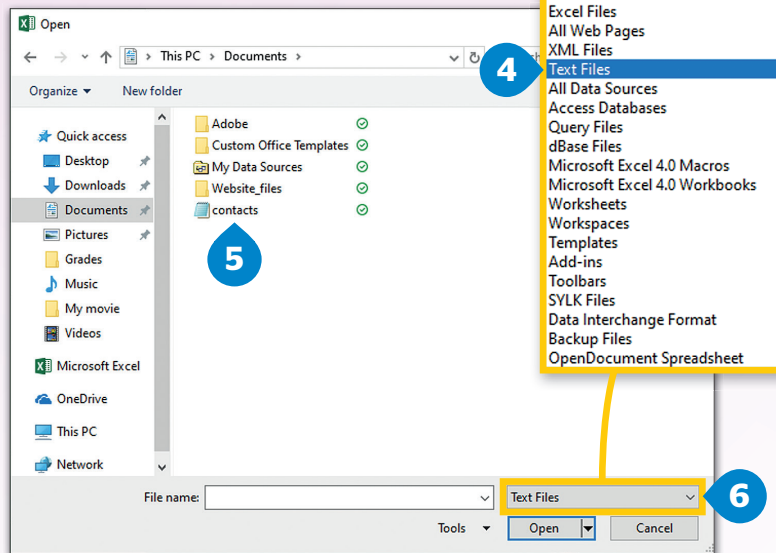
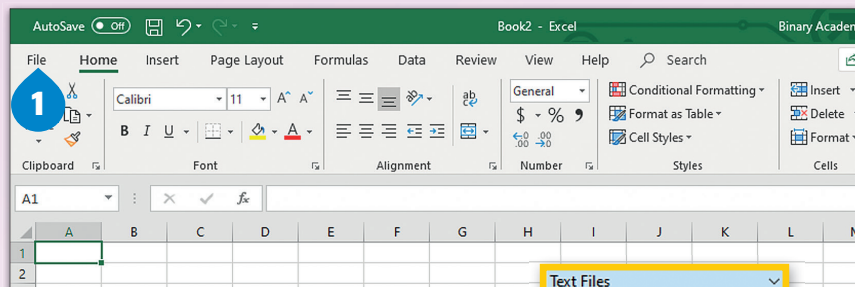
A Comma-Separated Values (CSV) file is a simple file format that is widely used by scientists and businessmen. As its name suggests, the values in each row of data are separated by a comma or a tab. CSV files are used to transfer large amounts of data to and from different companies or applications.

Sometimes, you will need to import data from a CSV file to **Microsoft Excel**. Let's create a CSV file. Open your **Notepad** and type the following text. Save the file under the name **contacts.csv**

```
contacts - Notepad
File Edit Format View Help
First Name,E-mail Address,Mobile Phone,Home Street
Kim,kim@digital-kids.com,2125004412,22 Alfred Drive
Lisa,lisa@digital-kids.com,2125002020,36 Cambridge Court
Marco,marco@digital-kids.com,2125004321,44 Woodrow Way
Stella,stella@digital-kids.com,2125001234,2048 Central Avenue
Tom,tom@digital-kids.com,2125002020,36 Cambridge Court
Alex,alex@digital-kids.com,2125005162,202 Newport Lane
```

### To open a CSV file in Excel:

- > Click the **File** tab **1** and then click **Open**. **2**
- > Click **Browse** **3** and from the **Open** window select **Text Files** from the drop-down list. **4**
- > Select the **CSV** file you want **5** and click **Open**. **6**



	A	B	C	D	E	F
1	First Name	E-mail Address	Mobile Phone	Home Street		
2	Kim	kim@digital-kids.com	2125004412	Alfred Drive		
3	Lisa	lisa@digital-kids.com	2125002020	36 Cambridge Court		
4	Marco	marco@digital-kids.com	2125004321	44 Woodrow Way		
5	Stella	stella@digital-kids.com	2125001234	2048 Central Avenue		
6	Tom	tom@digital-kids.com	2125002020	36 Cambridge Court		
7	Alex	alex@digital-kids.com	2125005162	202 Newport Lane		
8						

*Using the Open command this way the CSV file does not change its format.*

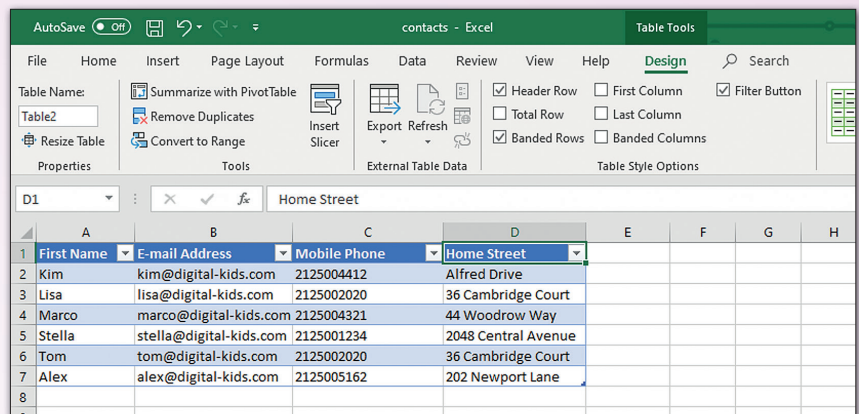
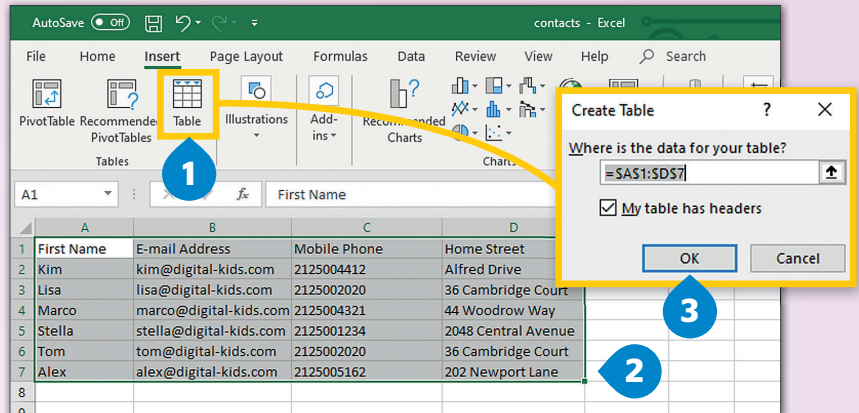




If you want to store lots of information, you can convert your text to a table.

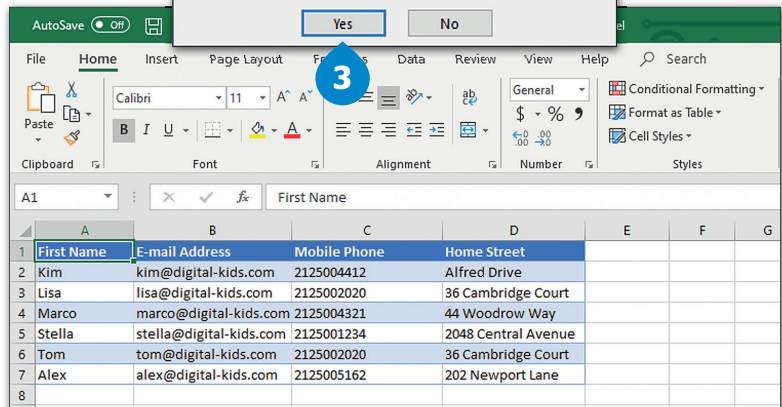
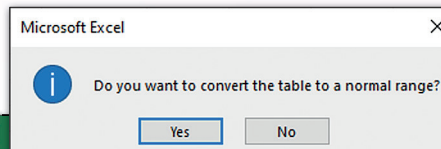
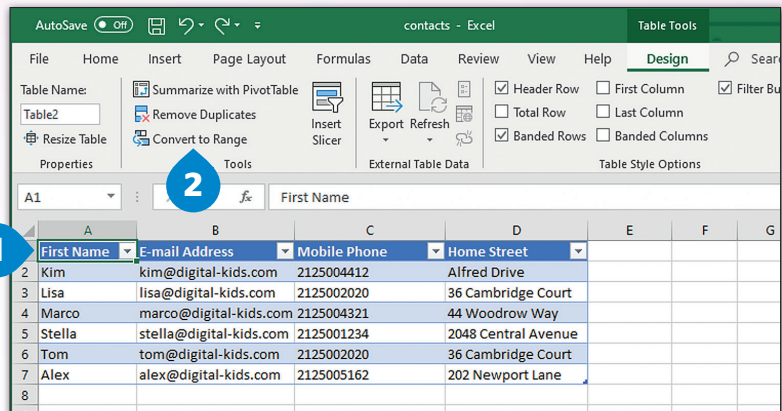
### To convert text to a table:

- > Select the cells you want to convert to a table.
- > On the **Insert** tab, in the **Tables** group, click **Table**. 1
- > Select cells **A1** to **D7** (the text you have just imported). 2
- > Click **OK**. 3



### To convert a table to text:

- > Click the table. 1
- > On the **Design** tab, in the **Tools** group, click **Convert to Range**. 2
- > Click **Yes** to confirm the conversion. 3

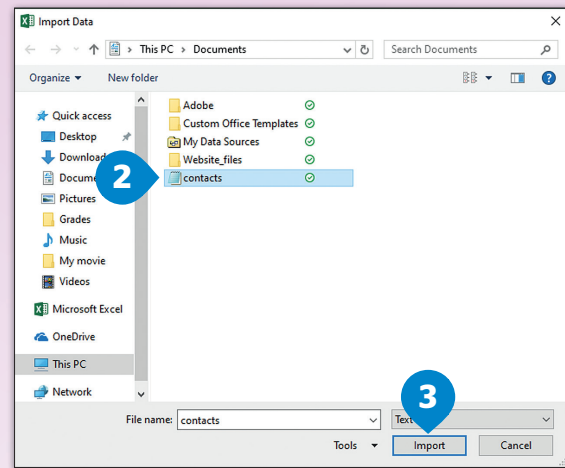
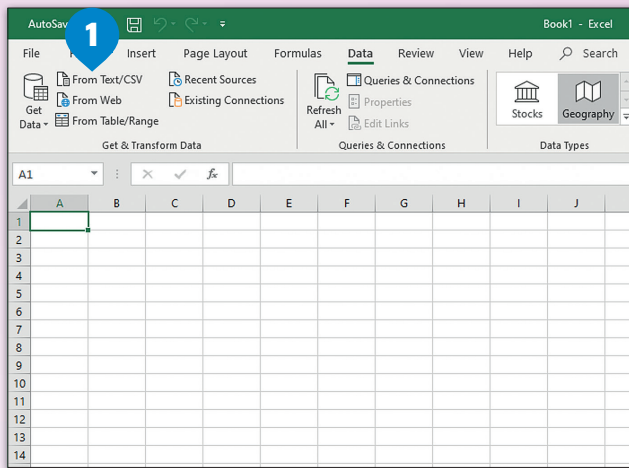


You can also import data from a CSV file into the existing or a new Excel worksheet. Unlike the previous method, this is helpful because it does not simply open CSV in Excel but data can be formatted and analyzed more easily.

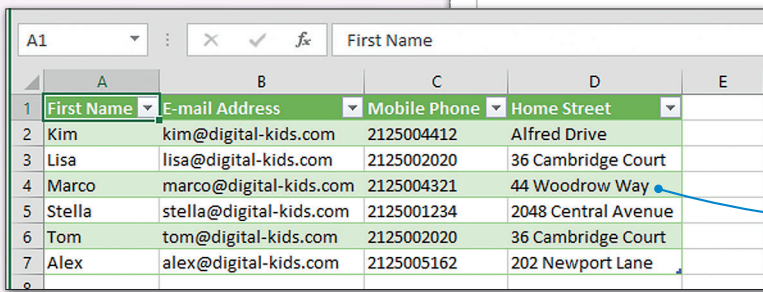
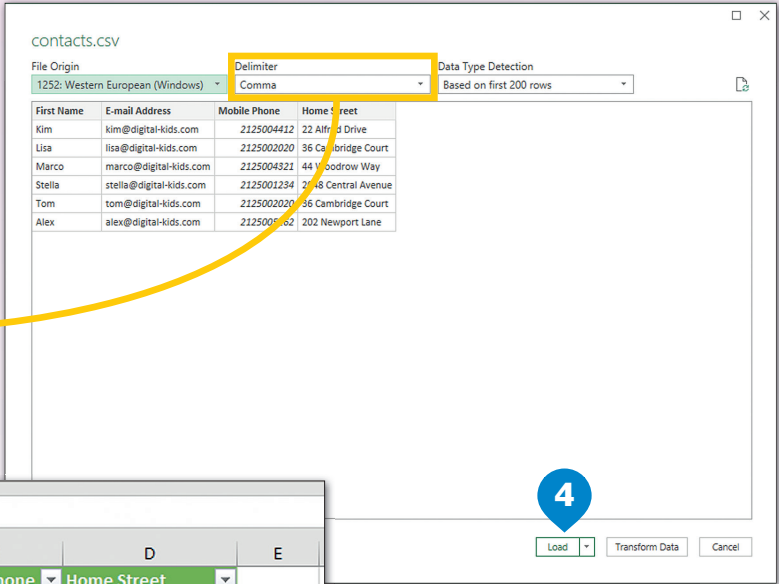
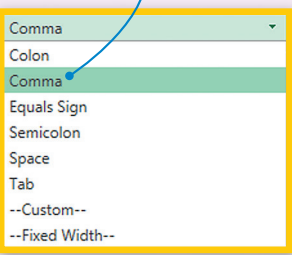
### Import data from a TXT or CSV file:

- > On the **Data** tab, in the **Get & Transform Data** group, click **From Text/CSV**. **1**
- > Locate and click **contacts.csv**. **2**
- > Click **Import**. **3** The **contacts.csv** window will appear.
- > Click **Load**. **4** to import a delimited file.

*Other than and commas, in a CSV file, columns may be separated by other characters such as ";" or "." or a space.*



**Delimiters** defines the character that separates values in your text file.



**When you import a csv file it is automatically converted to a table.**

**SMART TIP**  
You can also convert to range by right-clicking the table, and clicking **Table**.



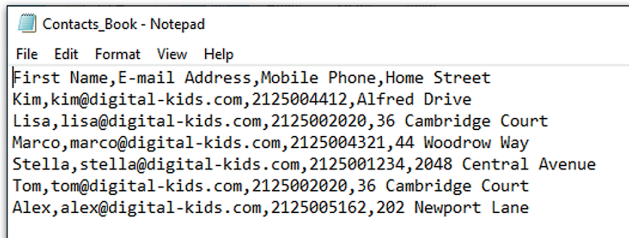
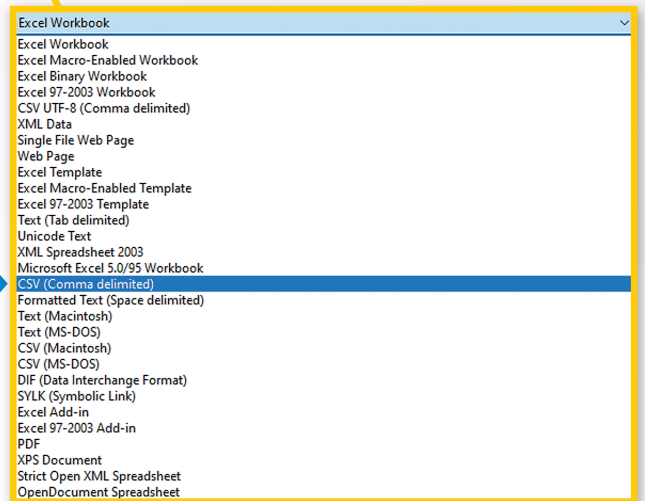
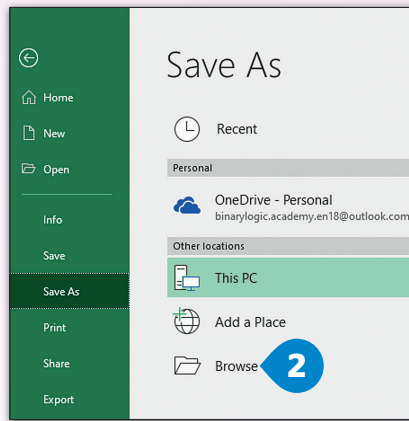
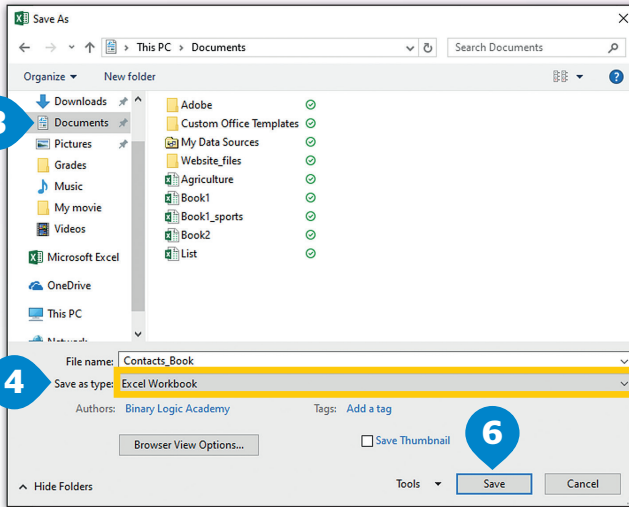
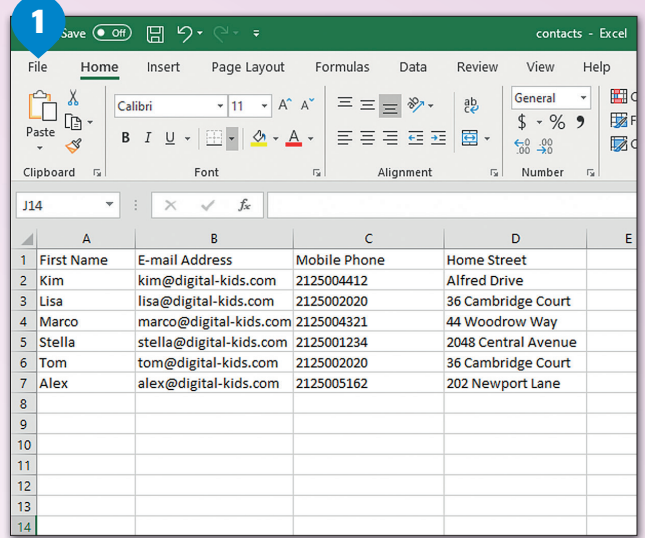
## Export data

Sometimes you want to store the data that you have created with **Microsoft Excel** in a format that can be understood by other applications. To do this, you can export them to a CSV file.

For example you have the spreadsheet below:

To export data from Microsoft Excel to a TXT or CSV file:

- > Click the **File** tab. **1**
- > Click **Save As** and then **Browse**. **2** The **Save As** window will appear.
- > Choose the folder where you want your document to be saved. **3**
- > Type a name for your file in the **File name** box. **4**
- > In the **Save as type** list, click **CSV**. **5**
- > Click **Save**. **6**



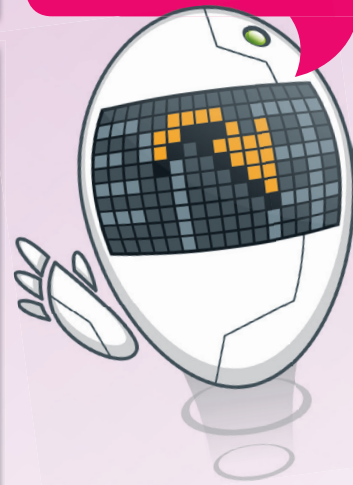


## CSV

CSV files are simple but important. A CSV is a simple text file with no format. The data are stored as a sequence of characters. This way the file is relatively small in size, even though it can hold a large amount of data. The CSV format is widely supported by companies and consumers, because it helps them transfer large amounts of data from one program to another. Because it's small in size and can be highly compressed through zip programs, you can transfer the data more easily over the Internet.

```
Contacts_Book - Notepad
File Edit Format View Help
First Name,E-mail Address,Mobile Phone,Home Street
Kim,kim@digital-kids.com,2125004412,Alfred Drive
Lisa,lisa@digital-kids.com,2125002020,36 Cambridge Court
Marco,marco@digital-kids.com,2125004321,44 Woodrow Way
Stella,stella@digital-kids.com,2125001234,2048 Central Avenue
Tom,tom@digital-kids.com,2125002020,36 Cambridge Court
Alex,alex@digital-kids.com,2125005162,202 Newport Lane
```

You are going to come across CSV files quite a lot from now on. Especially, if you want to transfer data from databases to spreadsheet and vice versa.



```
Book2 - WordPad
File Home View
Courier New 11 A
B I U abc X: X'
Clipboard Font Paragraph Insert Editing
,,,,,Ticket, € 12.00 ,
Visitors,,,,,
Museums, August, September, October, November, December, Sum
Visitors, Income
Louvre Museum, 45485, 65635, 52000, 12500, 62000, 237620, " €
2, 851, 440.00 "
Army Museum, 45632, 45635, 42000, 21000, 56204, 210471, " €
2, 525, 652.00 "
Maillo Museum, 25246, 53543, 12520, 14002, 25021, 130332, " €
1, 563, 984.00 "
The Advertising Museum, 12415, 15425, 42510, 18002, 12000, 100352, " €
1, 204, 224.00 "
Museum of Naive Art, 15832, 14585, 15200, 16012, 17000, 78629, " €
943, 548.00 "
Cité des Sciences et de
l'Industrie, 15352, 15325, 16000, 15004, 16200, 77881, " € 934, 572.00 "
```

```
*Agriculture - Notepad
File Edit Format View Help
January, February, March, April, May, June, July, August, September, October, November, December, Total, Average, Min, Max
Oragnes, 10, 12, 5, 10, 6, 17, 20, 15, 0, 14, 18, 5, 132, 11.00, 0, 20
Apples, 8, 13, 25, 9, 12, 14, 14, 19, 10, 0, 17, 5, 146, 12.17, 0, 25
Potatoes, 15, 14, 19, 4, 18, 12, 9, 8, 15, 5, 0, 5, 124, 10.33, 0, 19
Tomatoes , 20, 17, 14, 5, 17, 6, 7, 20, 12, 3, 10, 5, 136, 11.33, 3, 20
Total, 53, 56, 63, 28, 53, 49, 50, 62, 37, 22, 45, 20, , , ,
Average, 13.25, 14.00, 15.75, 7.00, 13.25, 12.25, 12.50, 15.50, 9.25, 5.50, 11.25, 5.00, , , ,
Min, 8, 12, 5, 4, 6, 6, 7, 8, 0, 0, 0, 5, , , ,
Max, 20, 17, 25, 10, 18, 17, 20, 20, 15, 14, 18, 5, , , ,
```

## hands on!

Open Notepad and type the following text. Save it as a CSV file and give it the name of your choice. Then import it into Microsoft Excel.

**Rank, Country, Total medals**

- 1, USA, 104
- 2, China, 88
- 3, Great Britain, 65

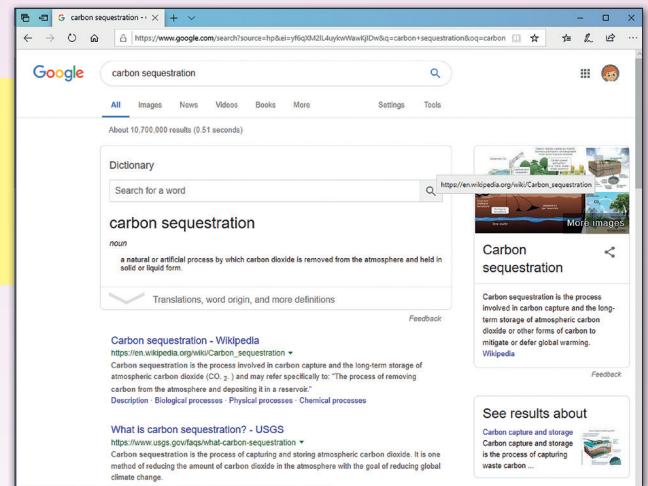


## TASK 6 Project

If you want to analyze some data, first of all you need to gather it. Brainstorm a list of the ideas that you want to include in your analysis. Write the ideas down on a notepad and don't forget to write down all the things that you want to display and compare.

# 1

Let's analyze the carbon dioxide emissions in your country. Using the Internet try to cross-check all your information to make sure it is correct.



A screenshot of Microsoft Excel showing a table of Carbon Dioxide (CO<sub>2</sub>) Emissions. The table has columns for Month/Year, 2010, 2014, and 2018. The data is as follows:

Month/Year	2010	2014	2018
1	384,85	388,23	391,21
2	383,28	387,25	392,41
3	386,19	389,45	393,39
4	385,2	386,38	391,45
5	386,23	388,55	392,31
6	384,75	387,45	390,47
7	386,89	389,69	391,34
8	385,1	388,45	392,45
9	387,56	389,87	391,53
10	386,75	389,96	390,28
11	387,55	390,98	391,89
12	385,38	389,89	391,94
Average			

When you finish collecting your data, open **Microsoft Excel** and type it in an appropriate way. Keep in mind that you should add headings or titles to your columns and rows in order to define what is shown in each cell.

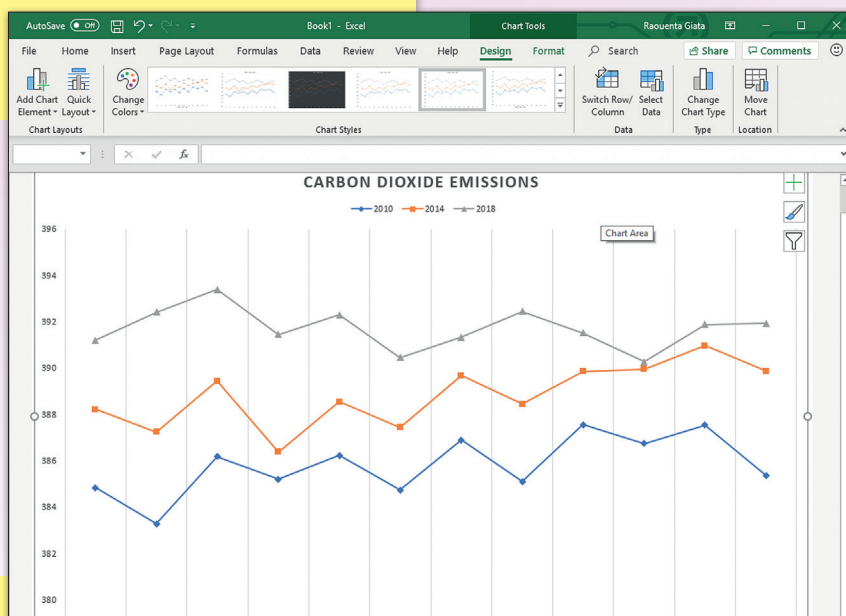
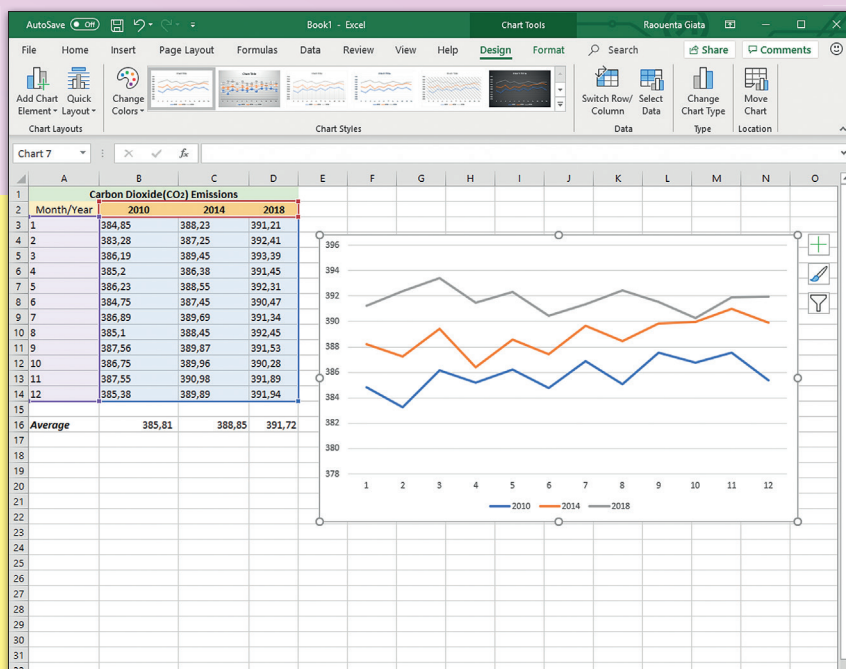
After inserting your data, create the formulas that you need. Don't forget that empty cells are ignored!

A screenshot of Microsoft Excel showing the same table as the previous image, but with an average formula added to the bottom row. The formula bar shows `=AVERAGE(B3:B14)`. The average values are calculated as follows:

Month/Year	2010	2014	2018
1	384,85	388,23	391,21
2	383,28	387,25	392,41
3	386,19	389,45	393,39
4	385,2	386,38	391,45
5	386,23	388,55	392,31
6	384,75	387,45	390,47
7	386,89	389,69	391,34
8	385,1	388,45	392,45
9	387,56	389,87	391,53
10	386,75	389,96	390,28
11	387,55	390,98	391,89
12	385,38	389,89	391,94
Average	385,81	388,85	391,72



*Next, you can illustrate your data with the help of graphs. Remember that you use graphs to make visual comparisons between one or more series of data points. In this way, you can present your data in a more informative way. You can add a chart title and axis title to make your graph more informative.*



*Finally, print the graph and data table.*

## 2

**Form teams** and analyze relevant data about the top five countries with the most medals in the Olympic Games in the last twenty years. Find information on the Internet.

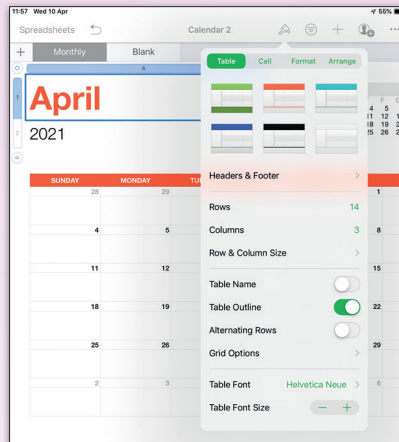
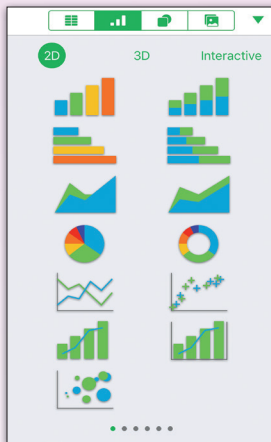
**Don't forget** to illustrate the data with the help of a graph. Print the graph and the table and share them with your classmates.



# Other platforms

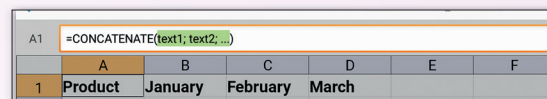
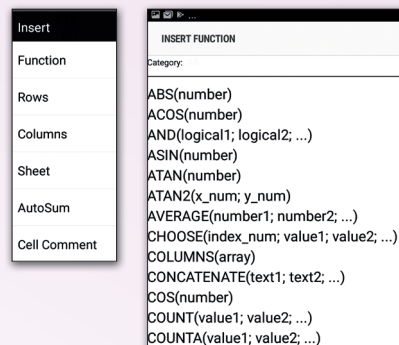
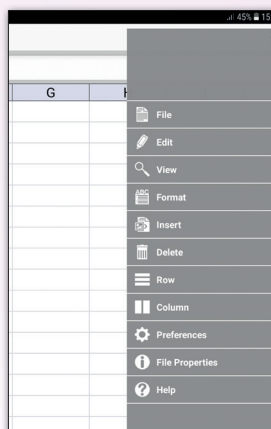
## Apple Numbers for iOS

Use **Apple Numbers** for advanced formatting. Use different chart types to illustrate your information. The chart types are similar in every spreadsheet program.



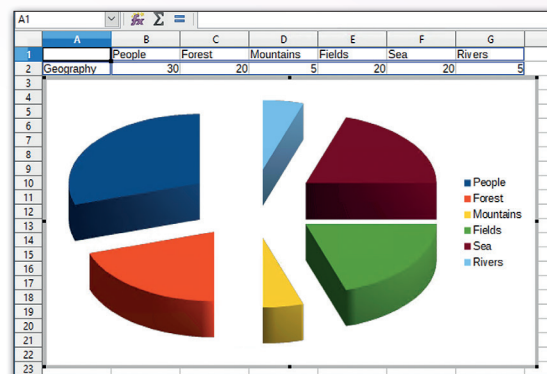
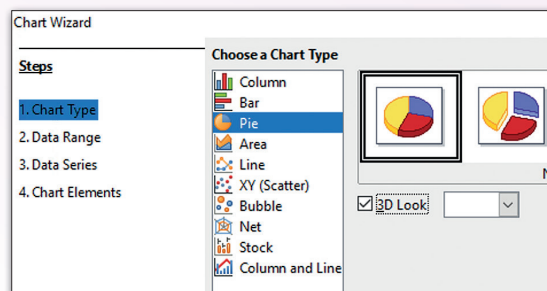
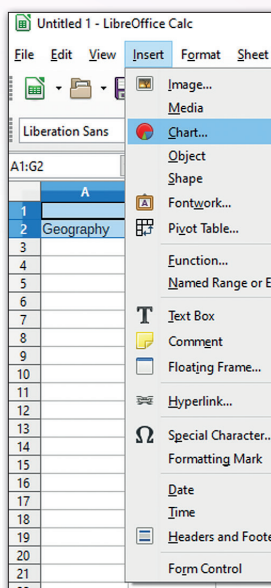
## Sheet To Go for Google Android

The functions that you've learned are similar in any spreadsheet program. Use **Sheet To Go** to edit text, calculate Average, even Sine and Cosine and other algebraic functions.



## LibreOffice Calc

**LibreOffice Calc** has all the tools that you need to make calculations and edit data. Because its environment is very similar to **Microsoft Excel**, it will be a piece of cake for you to use. Use all the familiar charts and functions.

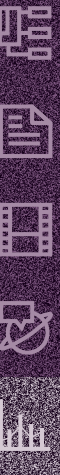
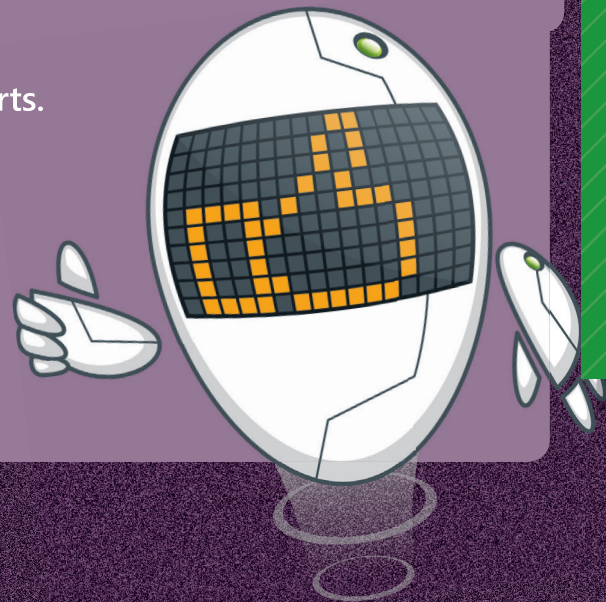




# wrap up

Now you have learned how to:

- > work with powers and percentages.
- > use advanced functions.
- > use a multiple IF.
- > use relative and absolute references.
- > understand and correct error messages.
- > format different types of charts.
- > create mini charts.
- > apply conditional formatting to cells.
- > import and export data as a CSV file.



## GLOSSARY

absolute reference	conditional formatting	export formula	multiple IF multiplication	scatter chart
addition	COUNT	gradient	OR	sparkline
AND	COUNTIF	import	percentage	SUBSTITUTE
area chart	CSV	LEFT	pie chart	subtraction
bar chart	delimiter	line chart	power	TODAY
column chart	division	MID	relative reference	TXT
CONCATENATE	doughnut chart	mini chart	RIGHT	
	error message			



COURSES FOR 21st CENTURY LEARNERS

# Computing and ICT

## COMPUTING AND ICT SAMPLER

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