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# Information & Communication Technology (ICT)

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# INDEX

## UNIT 3 : Digital Citizenship

Lesson 1	Technological Applications in Our Lives
Lesson 2	Digital Citizenship: My Rights and Responsibilities Online
Lesson 3	Methods of Online Communication: Synchronous and Asynchronous
Lesson 4	Digital Communication Tools
Lesson 5	My tools for Online Learning
Lesson 6	Digital Research Skills: Planning and Evaluating Sources

## UNIT 4 : My Digital Project

Lesson 1	Digital Problem Solving
Lesson 2	Presenting Information
Lesson 3	Algorithm
Lesson 4	Programming: The computer Language & Game Development
Lesson 5	Exploring the Scratch Program
Lesson 6	Creating & Editing Digital Images



## Digital applications in our life

### UNIT 3



### What are digital applications?



- Applications help people to get the services easily.
- They are useful tools for us and for the society around us.
- They make the things easier than we imagine.



### Uses of Digital Tools

Creative people use different digital technology tools to:

- Find real solutions that benefit people.
- Design useful applications and websites



### Benefits of Digital Tools



#### 1 Easy Access to Services

People can use the apps to pay bills, get help from the right organization.

#### 2 Easy Travel & Entertainment

- We can book tickets online with one click:

- \* Tickets for trains and airplanes
- \* Tickets to visit museums & historical places

#### 3 Improving Communication

- Technology helps people communicate better, and **helps in** :
- Solve problems
- Build good relationships



#### 4 Main Idea

- When we use Technology in a positive way, it **helps** us to:
- Become more successful in our life. – The communities grow

# 1 Exercise Lesson 1

Put (✓) or (X):

- 1 Digital tools can be used to find solutions to daily problems ( )
- 2 Technology makes paying bills more difficult ( )
- 3 We can use applications to get help from the right organizations ( )
- 4 Booking airplanes tickets cannot be done online ( )
- 5 Technology always harms people and never helps them them ( )
- 6 Good communication helps people build good relationship ( )
- 7 Digital tools make booking museum tickets easier ( )
- 8 Information became harder to get because of the internet ( )
- 9 Communities can benefit from digital solutions ( )
- 10 Digital tools make daily tasks easier for us ( )

\* Choose the correct answer:

1 – What is the main goal of using Digital technology?

- A- To make life harder
- B- B- To prevent communication between people
- C- To make tasks easier and help people

2 – How can a digital application help people?

- A- To buy clothes
- B- To obtain help from the right organization
- C- To go to school

3 – Which example shows how technology made travel easier?

- A- Booking airplane tickets online
- B- Playing in the park
- C- Drawing on paper

4 – One benefit of websites is .....

- A- Stopping people from talking to each other
- B- Making information available for everyone
- C- Making the weather hot

5 – What do we achieve when we use technology in a positive way?

- A – Cause problem for others
- B- Help to achieve success and development
- C- Prevent people from learning

6 – Which of these is a digital tool?

- A – A paper book
- B- A pencil
- C – An App. on a smart phone

7 – Which financial problem can be solved using digital application?

- A – Difficulty cooking
- B – Difficulty paying bills
- C – Difficulty riding a bike

## My Rights & Responsibilities Online

### UNIT 3



### Digital Citizen



- It is the ability to use technology ethically, responsibly and safely.
- It means you should know your rights and responsibilities online.

### Digital footprint

- It is a record of what you do online.
- It is what you do or share with others, including:
  - The websites you visit
  - The photos you post
  - The comments you write
- It is important to keep your digital footprint positive.
- Don't share your personal information or the personal information of others in an unsafe way.



### Rights & Responsibilities

As you have rights and responsibilities at school and home, you also have rights and responsibilities online.



#### Responsibilities

Respect intellectual property rights	Never copy or steal the content of others ( story or song) for sharing or selling, as it is a <b>piracy</b>
Positive behavior	Always be polite online and share your ideas positively
Wise use of the internet	Watch useful things, it is important to balance between your time online with spending time with family and friends

#### Rights

Protection	No one can copy your digital footprint or share your photos or videos without permission
Express Positively	You have the right to express your ideas and opinions with the help of your family and friends without hurting others
Access safely	You have the right to use the internet safely when you need, just follow the law

### Piracy

It is copying or stealing a protected content, to be shared or sold to others

### Rules to use internet safely

- Use strong password
- Credit sources from which you took the information
- Monitor online screen time
- use updated software

## Exercise Lesson 2

2

Put (✓) or (✗):

- 1 A digital footprint is everything you do on the internet, it is important to be positive ( )
- 2 Digital citizenship is only knowing how to use a computer ( )
- 3 You have the right to use the internet when you need it, but you must respect the law ( )
- 4 It is your responsibility to be sure the content you watch online doesn't cause you stress ( )
- 5 Piracy means copying someone else's content to share it or sell it ( )
- 6 It is not important to use a weak password as long as you don't share it ( )
- 7 You have the right to ask for protection against piracy for videos you have created ( )
- 8 You don't need to check sources you find on the internet as all of them are correct ( )
- 9 You can share your opinion online in any way, even if it hurts others ( )
- 10 You should wisely choose the websites you visit and use updated software ( )

Choose the correct answer :

1-The right definition for the digital citizenship is .....

- A – The ability to use technology ethically, responsibly and safely  
 B- *Watching videos only*  
 C – *Sharing all personal information*

2. The things you do online that leave a trace are called .....

- A – Responsibilities                      B – Rights                      C – Digital footprint

3. One of the most important responsibilities online is .....

- A – Not checking any resources  
 B – Respecting intellectual property and avoid piracy  
 C- Sharing content immediately

4. When interacting with others online, you should ....

- A – Show positive behavior and be respectful  
 B – Show your opinions in a rude way  
 C – Ignore them

5. What should you do when you find information for your research ?

- A – Ignore the source  
 B – Check, evaluate and cite the sources  
 C – Share it immediately

6. What is one of your rights as a digital citizen?

- A – Stealing content from the internet
- B – Not copying your footprint without your permission
- C – Ignoring time with family

7. Using the internet safely means .....

- A – Using a simple password
- B – Using a strong password
- C- Not watching your screen time

8. When intellectual property rights are not respected, this is called ....

- A – Positive interaction
- B – Piracy
- C- A clean digital footprint

9. An example or responsible use if the internet is .....

- A – Balancing internet use with face to face communication
- B – Sharing your opinion
- C – Using technology only when needed

10. It is very important not to share your information or others' information online in a / an.....

- A – Responsible way      B – Unsafe and irresponsible way
- C – Safe way

Methods of Online Communication:  
Synchronous & Asynchronous

UNIT 3



### Synchronous Communication

- Communication happens at the same time (simultaneously).
- It is like Face to Face communication, but online.
- Ex: Like the phone calls or when talking to your classmate in class.



### Synchronous Communication Tools

Video chat      (IM) Instant Messaging      Chat rooms

### Video chat

- They allow direct (live) communication with one or more people  
( Tools Needed )

1. A device with a camera and a microphone
2. A video chat app for the mobile or a program for the computer



## Instant Messaging (IM)

You can send text messages, pictures and videos and arrive instantly.

( Tools Needed )

An instant messaging app for the mobile or a program for the computer

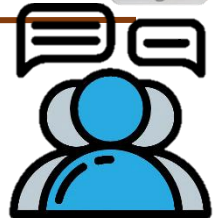


## Chat rooms

These allow you to communicate in a group on one particular subject & the response is immediately.

( Tools Needed ) - Mobile app or web browser as :

**Internet Explorer – Google Chrome**



## Asynchronous

- A communication that doesn't require an instant response.
- It is the exchanging information between two persons or more without need to communicate at the same time. The reply is later.



## Asynchronous Communication

### Email

- It is used for **Formal** or **Long** messages, Ex.:

- 1 – Asking for your teacher help
- 2 – Communicate with an official

( Tools Needed )

- An email app or web browser to access an email website on your device.



## When do you use Synchronous or Asynchronous Communication?

### Synchronous Communication

- When discussing a school topic quickly.
- When you need an instant response.
- When sharing information and files quickly.

### Asynchronous Communication

- When sending formal messages
- When you don't need an instant response.
- When sending important and large files ( like the home work)

## Exercise Lesson 3

### 3

### Put (✓) or (X)

- 1 Synchronous communication happens in a real time and needs a quick response ( )
- 2 You cannot use an email to talk to your teacher about a school project ( )
- 3 Email is an example of asynchronous communication ( )
- 4 In synchronous communication, both people must be online at the same time ( )
- 5 Chat rooms can be used to discuss a specific school subject ( )
- 6 Instant messaging (IM) is a tool for asynchronous communication ( )
- 7 You can use web browser like Google Chrome to access chat rooms ( )
- 8 Asynchronous communication needs a fast answer from the other person ( )
- 9 Video chats let you talk directly with one or more people ( )
- 10 A mobile app cannot give you access to video chats ( )

### Choose the correct answer :

1 - What kind of communication happens in real time and needs an instant response ?

- A - Asynchronous communication
- B - Email
- C - Synchronous Communication

2 - Video chats are an example of ..... communication.

- A - Asynchronous communication
- B - Traditionnel communication
- C - Synchronous communication

3 - The best way to send a formal message to your teacher or an official is ....

- A - Instant messaging
- B - Video chats
- C - Email

4 - Chat rooms are often used for ....

- A - Long personal talks
- B - Sending formal homework
- C - Discussing a specific school subject or idea

5 - Which communication does not require an instant response and can be replied later ?

- A – Instant messaging                      B – Video calls                      C – Email

6 - What is the needed tool to have a video chat?

- A – Microphone  
B – A device with Camera & microphone  
C – A fax machine

7 - Synchronous communication allows you to .....

- A – Send a file and get a reply the next day  
B – Exchange information and files between people without delay  
C – Read educational articles

8 - A mobile application is a program on your device that gives you direct access to.....

- A – Cooking and recipes only  
B – Email, social media and video chats  
C – Paper school books

9 - Sending a digital file or a recorded educational program is an example of .....

- A – Synchronous communication  
B – Asynchronous communication  
C – Video chats

10 - Instant messaging (IM) is an example of .....

- A – Asynchronous communication  
B – Synchronous communication  
C – Formal emails



## Digital Communication Tools

### UNIT 3

#### Video Chats

A virtual classroom depends on a group of rules

#### 1 – Camera & microphone

- When start chat, make sure the microphone and camera are on (after getting permission )

#### 2 – Respect Others

- When someone is talking, mute your microphone to prevent noise.



### 3 – Be properly dressed

When the camera is on, make sure  
 - You wear appropriate clothes      - Behave as if in a public place

### 4 – Safe background

- Make sure there is nothing in your background (your home address any personal information) that you don't want others to share.

## Steps to join video chat

1. Click on chat link.
- 2-Wait for permission.

## Instant messaging & Chat room

It is a fun, casual way to communicate, but you have to :



### 1 - Be polite

If you are in a chat room or send an instant message, be polite and positive

### 2 – Use short sentence

Instant messaging is informal, so use short sentences not full sentences.

### 3 – Be helpful

You can use emojis and photos, but be polite with others

## Remember

Anyone who has access to the chat room will be able to read your message

## E mail

E mail is commonly used in more formal situations, such as :

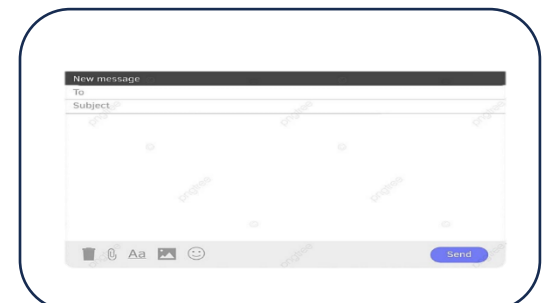
1. Messaging your teacher
2. Dealing with official site

Note

To send E mails do the following steps:

### 1 – Write title

- In the “**To**” field write the e mail address (of the receipt).
- In the : “**Subject**” line: provide clear information on the title (topic) of the e mail



## 3 – Greeting &amp; ending

Be polite and clear,  
begin and end the  
email with greeting.



## 2 – Respect rules

Be sure to use correct  
grammar

## 4 – The Attachment

If you send files (attachment)  
Be sure they are right, safe, accurate  
and free of virus



## Exercise Lesson 4

4

(✓) Put or (X):

- 1 During a video call, you should behave as if you are in a public place ( )
- 2 Instant messaging is a formal tool where you must use full sentences ( )
- 3 An email must include polite greetings and endings ( )
- 4 Leave the camera on even if you not wearing appropriate clothes ( )
- 5 It is important to make sure that email attachments are safe and accurate ( )
- 6 In chat rooms, your message is private and only seen by the receiver ( )
- 7 Email is suitable for messaging your teacher or school manager ( )
- 8 You can use emojis and pictures in instant messages ( )
- 9 The "To" box in an email is for writing the subject of the message ( )
- 10 It is important to mute your microphone when you are not talking during a video call ( )

**Choose the correct answer :**

1 - If you are in a video call with your classmates, when should you mute the microphone ?

A – Join the call      B – it is another person's turn to talk      C – Leave the call

2 - Instant messaging is considered a/an ..... communication tool.

- A – Formal
- B – Informal
- C – Complicated

3 – Where do you write the email address of the email recipient?

- A – In the CC box
- B – In the subject line
- C – in the TO box

4 - What should you do if you want to join a video call ?

- A – Click on the link and wait to be let in
- B – Leave the room
- C – Join directly

5 – When writing an email, you should use ....

- A – Emojis and slang
- B – Correct grammar, greeting and ending
- C – A lot of cartoon photos

6 – During a video call, if the camera is on, make sure your ..... is/are not in the background.

- A – School books
- B – Personal information or home address
- C – Single color

7 – In chat rooms, who can read your message?

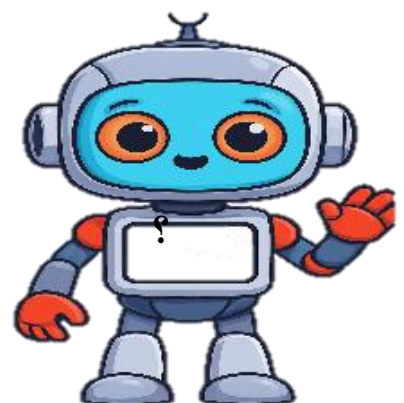
- A – Anyone who has access to the chat room
- B – Only the person you sent the message to
- C – Only you

8 – What is the main purpose of using email?

- A – Sending entertainment symbols
- B – Formal situations
- C – Quick and instant conversations

9 - What should you do when using instant messaging?

- A - Use very long and formal sentences
- B – Have good manners when dealing with others
- C – Post information about others



## My Tools for Online Learning

### UNIT 3



### (Online Learning Environments)

Platforms that allow the teachers and the class mates to communicate with each other **such as**:

### Edmodo.

#### Help Teachers to :

- Provide virtual lessons.
- Upload quizzes and homework

#### Help Students to:

- Communicate with teachers.
- Send assignments after finishing them.
- Upload lessons and quizzes from the teacher

### Online Learning Sources

- They are huge libraries contain information online.
- You should always rely on reliable sources when searching for information.

### Reliable Educational Resources

#### Egyptian Knowledge Bank (EKB)

- A huge digital library in Egypt
- Contains various sources and topics in all fields, like : \* Articles \* Videos

Link of website : <http://ekb.eg>



Egyptian Knowledge Bank  
بنك المعرفة المصري

#### (Interactive Mampaker)

- It is a free tool that works on tablets and laptops.
- It provides tools for online mapping.
- It allows data collection and research using maps.

<https://mampaker.nationalgeographic>.

#### “Vlaby”

- It is a virtual lab platform
- It enables students and teachers to do fun lab experiments; make Learning interactive not only information.
- Link of website <https://vlaby.com>

### Note

To collect data, you should use reliable digital tools

## Exercise Lesson 5

### 5

Put (✓) or (X):

- 1 Online learning environments allow teachers to provide virtual lessons for students ( )
- 2 The Egyptian Knowledge Bank contains sources in the English language only ( )
- 3 Reliable online sources are not important for research and data collection ( )
- 4 You can use online learning environments to search for information about animals and science ( )
- 5 Online learning is limited to read limited articles only ( )
- 6 The EKB is considered an online learning environment not a learning source ( )
- 7 Vlaby is a platform that allows students to conduct scientific experiment in an interactive environment ( )
- 8 Students can use Edmodo platform to communicate with their teachers and post their assignments ( )
- 9 The interactive mapmaker is an instant messaging tool between students. ( )
- 10 Through the EKB, you can search and view different topics ( )

Choose the correct answer

1 – Which of the following platform is an example of online learning environment?

A – Paint

B – Edmodo

C – Email

2 – All of the following can be provided by online learning environment except ....

A – Advanced math lessons

B – Scientific experiments only

C - Various topics like animals, science, history and geography

3 – The main feature of Vlaby platform is that it allows students to ....

A – Download school exams

B – Communicate with parents only

C – Conduct scientific experiments in an interactive environment

4 – The Egyptian Knowledge Bank (EKB) is .....

A – An instant messaging app

B – The first digital library in Egypt that contains various sources

C – A program for playing games



5 – What is the purpose of using the Interactive Mapmaker?

- A – Online mapping and research using data
- B – Downloading math homework
- C – Watching entertainment movies

6 – What can teachers provide through learning environments like Edmodo?

- A – Video games only
- B – Virtual lessons, uploading exams and assignments
- C – Sending Emails

7 – What is the most important feature that the digital learning tools we use should have?

- A – To be colorful
- B – To be reliable and safe
- C – To be for teachers only

8 – You can access topics, articles and videos in the Egyptian Knowledge Bank by simply .....

- A – Using an external app
- B – Clicking on the source
- C – Visiting the school

9 – Online learning environment allow communication between teachers and students .....

- A – Only when they are in the same place
- B – Regardless of where they are
- C – At specific times in the morning only

10 – The Vlaby platform is classified as a platform that allows students to .....

- A – Watch pictures only
- B – Interact with scientific content
- C – Instant messaging



## Digital Research Skills : Planning & Evaluating Sources

### UNIT 3



### Planning Your Digital Research

#### 1 – Choose Research Topic

- Think in the research subject before you start ( like dinosaurs, space, environment protection)
- Set the goal, the main information you know, and the additional points you need to learn. \* Write simple notes

#### 2 – Choose types of resources

- Digital research can include many sources, such as :  
\*Images \* audios \* videos \* articles

#### 3 – Evaluate the resource

Evaluate the sources of information:  
reliable or unreliable?

### Note

You should ask your teacher or parents to choose reliable sources for your research

### Evaluating Sources

During the research, you will find two kinds of sources; you have to know the difference to take the correct information

Sources	Reliable Sources	Unreliable Sources
<b>Definition</b>	They are articles or information written & verified by experts	It may include right information, but also include opinions, errors, and even lies
<b>Kind of Information</b>	The information is presented in a professional fashion	You must be careful of information you find on these sources
<b>Examples</b>	<ul style="list-style-type: none"> <li>• Egyptian Knowledge Bank (EKB)</li> <li>• Official government sites</li> <li>• Digital school books</li> </ul>	<ul style="list-style-type: none"> <li>• Wiki pages</li> <li>• Blogs</li> <li>• Social media sites, like: Facebook</li> </ul>

### Advices for Research

- Only focus on the subject you search without distraction
- When you find information, always ask for the reliable sources.
- Write detailed notes, and mention the source in the report

### Organizing & Writing Report

- Write the report in a logical and organized way.
- Use research outline for ( organizing the notes before you begin to write – helping in presenting the information in a logical way)



## Main outline parts

**The topic of the report**  
(What will you search?)

**Supporting Paragraph**  
Present the information  
you found about the topic  
(Details of your research)

**Conclusion**  
The final thoughts about the  
Information you provided  
(What did you learn?)

## Exercise Lesson 6

6



### Put (✓) or (X):

- 1 You should start your digital research by planning the topic and focusing on it ( )
- 2 Reliable sources are those that provide information written professionally and free of spelling errors ( )
- 3 After finishing the research, you must use an outline to organize your notes in a logical way ( )
- 4 The conclusion in a report represents the report topic in detail ( )
- 5 Sources you find in Blogs are always reliable and can be depended on ( )
- 6 Supporting paragraphs in a report are those that provide the collected information and data ( )
- 7 You should only care about searching for text sources and ignore audio recordings and videos ( )
- 8 You can ask your parents or teacher about reliable sources for research ( )
- 9 There is no need to mention the source in your report, as information belongs to everyone ( )
- 10 When you find information, you must ask yourself: Is it reliable? ( )

### Choose the correct answer

1 – The information found on social media sites is considered .....

A – Reliable                      B – Unreliable                      C – Accurate

2 – Which part of an outline presents the ideas and information you found in the research?

A – Introduction                      B – Supporting Paragraphs                      C – Conclusion

3 – A digital research can include non-text sources, such as :

A – Paper Books                      B – Videos and Audios Recordings                      C – Outlines only

4 – In which way should reliable sources be written?

A – Professional without Grammar errors

B – Informal with Grammar errors

C – too short

5 – What is the first step you should take before starting any digital research?

A – Start searching immediately

B – Planning, choosing the topic and focusing

C – Printing the report

6 - What is the organized set of notes that helps you arrange your idea for a report?

A – Detailed Report

B – Reliable source

C – Final Conclusion

7 – What should you write in your notes when you see a reliable source?

A – Your personal opinion only

B – Detailed, accurate notes

C – Lies and opinions of others

8 – A digital research can include non-text sources, such as :

A – Paper Books

B – Videos and Audios Recordings

C – Outlines only

9 – Which of the following should you ask to find valid sources for your research?

A – A friend who doesn't know the topic

B – Your teacher or the school librarian

C – A commercial advertisement

10 – What should you do when you find information before using it ?

A – Start writing immediately

B - Evaluate it and make sure it is reliable

C –Post it on social media



## A Summary on Unit 3

Term	Definition
Digital Tools	Applications help people get the services they need easily
Digital Citizenship	It is the ability to use digital technology ethically, responsibly and safely
Digital Footprint	It is a record of what you do online, including the websites you visit, the photos you post, and the comments you write
Piracy	It is the copying or stealing a content illegally to be shared or sold to others
Synchronous Communication	It is a real time communication happens at the same time and involves instant responses
Synchronous Communication Tools	(Video chats) - (IM) - (Chat rooms)
Video chats	They allow direct (live) communication with one person or more online
(IM)	You can send text, pictures, and videos that arrive instantly
Chat rooms	They allow you to communicate in a group and usually focus on one subject
Asynchronous Communication	It is a communication does not necessarily occur at the same time. It does not require an instant response
Asynchronous Communication Tools	Email
Email	You can use to send formal or long messages
Online Learning Environment	Platforms that allow teachers and students to communicate with each other, like Edmodo
Digital Learning Sources	They are huge digital Libraries provide information online
Egyptian Knowledge Bank (EKB)	A huge digital library in Egypt. It consists of different sources and subjects in all field, like: Articles and Videos
Vlaby	It is an interactive virtual platform enables students and teachers to do interesting scientific experiments
Interactive Mapmaker	It is a free tool for online mapping, data collection and research using maps. It works on tablets and laptops
Steps for digital research plan	<ol style="list-style-type: none"> <li>1. Choose the topic</li> <li>2. Choose the types of sources</li> <li>3. Evaluating the sources</li> </ol>
Types of Digital Research	images – audio recordings – videos – written articles
Reliable Sources	Information or articles written and verified by experts. They are correct and without grammar or spelling mistakes
Unreliable Sources	They may contain correct information, but they are also full of opinions, errors, and lies. They may also contain grammar and spelling mistakes, so take care of these sources

## Answer Keys on Unit 3

### Lesson 1

#### Put (✓) or (X)

- 1- ✓
- 2- ✓
- 3- ✓
- 4- X
- 5- ✓
- 6- ✓
- 7- ✓
- 8- X
- 9- ✓
- 10- ✓

#### Choose the correct answer :

1. To make tasks easier and help people.
2. To obtain help from the right organization
3. Booking airplane tickets online
4. Making information available for everyone
5. Help to achieve success and development
6. An app on a smart phone
7. Difficulty paying bills
8. visiting museums and historical places
9. It helps build good relationship
10. Helping communities grow and solve problems

### Lesson 2

#### Put (✓) or (X)

X	6	✓	1
✓	7	X	2
X	8	✓	3
X	9	✓	4
✓	10	✓	5

#### Choose the correct answer :

1	The ability to use technology ethically, responsibly and safely	6	Not copying your footprint without your permission
2	Digital footprint	7	Using a strong password
3	Respecting intellectual property and avoid piracy	8	Piracy
4	Show positive behavior and be respectful	9	Balancing internet use with face-to-face communication
5	Check, evaluate and cite the sources	10	Unsafe and irresponsible way

### Lesson 3

#### Put (✓) or (X)

1	✓	6	X
2	X	7	✓
3	✓	8	X
4	✓	9	✓
5	✓	10	X

#### Choose the correct answer :

1	Synchronous communication	6	A device with camera and microphone
2	Synchronous communication	7	Exchange information and files between people without delay
3	Email	8	Email, social media and video chats
4	Discussing a specific school subject or idea	9	Asynchronous communication
5	Email	10	Synchronous communication

## Lesson 4

<u>Put (√) or (X)</u>			
1	√	6	X
2	X	7	√
3	√	8	√
4	X	9	X
5	√	10	√

Choose the correct answer :

1	It is another person's turn to talk	6	Personal information or home address
2	Informal	7	Anyone who has access to the chat room
3	In the TO box	8	Formal situations
4	Click on the link and wait to be let in	9	Have good manners when dealing with others
5	Correct grammar, greeting and ending	10	The Subject line

## Lesson 5

<u>Put (√) or (X)</u>			
1	√	6	√
2	X	7	√
3	X	8	√
4	√	9	X
5	X	10	√

Choose the correct answer :

1	Edmodo	6	Virtual lessons, uploading exams and assignments
2	Scientific experiments only	7	To be reliable and safe
3	Conduct scientific experiments in an interactive environment	8	Clicking on the source
4	The first digital library in Egypt that contains various sources	9	Only when they are in the same place
5	Online mapping and research using data	10	Interact with scientific content

## Lesson 6

Put (√) or (X)

- 1.√
- 2.√
- 3.√
- 4.X
- 5.5
- 6.√
- 7.X
- 8.√
- 9.X
- 10.√

Choose the correct answer :

1. Unreliable
2. Supporting paragraphs
3. Videos and audios recordings
4. Professional without grammar errors
5. Planning, choosing the topic and focusing
6. Detailed report
7. Detailed, accurate notes
8. Videos and audios recordings
9. Your teacher or the school librarian
10. Evaluate it and make sure it is reliable

## Digital Problem Solving

### Unit 4

## Digital Problem Solving



Solving technology problems needs logical thinking steps to understand and fix the problem. These steps are :

### 1 - Construct a Hypothesis

It is an educated guess (initial explanation) about how the problem happened. This guess is called "**Hypothesis**" and this is the starting point you can test.

### 2 – Test the Hypothesis

- Don't try anything that may damage your device.
- Test your idea carefully and safely. The test should be safe and planned

### 3 – Learning

- If your test does not work ask yourself:
  - 1 – What went wrong?
  - 2 – What did I learn?
 We should learn from our mistakes, and use what we learned to make a better hypothesis next time.

### Breaking down Problem into small

- Break down the big problem into small sections. Solve each section step – by – step.
- This way is used when solving some ICT more complicated problems, like:
  - Internet not working
  - An app is not opening
- If you have a group of persons helping you to solve the problem, you can give each person a small part to solve separately.

### Asking for Help

- If the technical problem is complicated, do not hesitate to ask for help from your teacher as a source for solving the problem.
- The task may seem big or the problem is difficult, but asking help and breaking the problem into small parts makes it easier.

### Example from Real Life

- When organizing a class trip, it may seem difficult, but breaking it into small parts make it easier, like:
  1. Decide the destination
  2. Determine the date of the trip
  3. Find out the price per student.



### Note

- When solving a big technology problem, start with the parts you can do by yourself, step-by-step, until the big problem is solved.

## 1

## Exercise lesson 1

Put (✓) or (X):

- 1 ICT problems become easier when we break them into small parts ( )
- 2 A hypothesis is the final solution to how the problem happened ( )
- 3 You should always try to solve technical problem by yourself without asking for help ( )
- 4 In synchronous communication, both people must be online at the same time ( )
- 5 You don't need to take steps to solve a technical problem; the solution comes automatically ( )
- 6 Logical thinking steps are only needed for complicated problems, not daily life tasks ( )
- 7 Testing the hypothesis should not include any risk to the device you are using ( )
- 8 The teacher can help in organizing and solving big tasks and problems ( )
- 9 If you solve a problem in a group, each person should solve a small part of the problem ( )
- 10 A hypothesis is an educated guess about how things happen, and it can be tested ( )

Choose the correct answer:

1 – An educated guess about how a problem happens is called .....

A – The final solution

B – An experiment

C – A hypothesis

2 – The best strategy when a technology problem is very complex is to .....

A – Ignore it and look for another problem

B – Break it into small parts and solve gradually

C – Start solving without thinking

3 – The purpose of testing a hypothesis is .....

A – To prove you are always right

B – To know if the hypothesis failed and learn from your mistakes

C – To make the problem bigger

4 – When you have a big task, how do you make it easier?

A – Leave it as it is

B – Break it to small tasks

C – Ask someone to solve it completely

5 – If your hypothesis test fails, what is the most important thing to learn?

A – Never make another hypothesis    B – What went wrong and how it helps you build a better hypothesis

C- That the problem is unsolvable

6 – What should you avoid when testing your hypothesis?

A – Building a new hypothesis

B – Doing tests that may put the device at risk

C – Dividing the problem

7 – When organizing a trip, deciding the destination represents .....

A – A hypothesis    B – The big problem    C – A small part of the problem

8 – What should you do when facing a complex technology problem?

A – Ask the teacher or specialists for help

B – Try to solve it by yourself only

C – Playing on the computer

9 – When solving a big problem in a group, how can you organize the work?

A – Everyone works on the same part

B – Assign a small part for each person to solve

C- No one participates

## Presenting Information

### UNIT 4



### Digital Tools for Presenting Information



Microsoft 365's bundle offers excellent options for designing posters or billboard.

#### Microsoft (PowerPoint)

It is used to create presentation slides easily and quickly



#### Microsoft (Word)

It is used for writing texts, and can be used to create simple posters



#### Microsoft (Publisher)

It is a professional program to design posters and flyers an organized way





## Digital Concepts to Consider

When creating your posters or billboards, think about the following digital concepts:

### Margins

- It is the empty space around the edges of your poster or billboard.
- Keep a fixed margin of 2.5 cm & don't crowd the edges.
- If the edges are too crowded, the poster will look cramped and visually unappealing.



### Font Type and Size

- Always be sure to choose a font size that the information is easy to read.
- Avoid complicated or decorated fonts that is distracting and hard to read
- Simple fonts are better

### Colors

- Colors help deliver your message and catch attention.
- It is preferable not to add more than three colors
- Take into consideration the background when choosing the font color.

### Images

- Use images that match your content.
- Use clear, high-quality and appropriate images for the content you are sharing.

## Exercise Lesson 2

2

Put (✓) or (X):

- 1 Margins are the empty space around the edges of the poster ( )
- 2 Publisher is the best tool for creating professional posters ( )
- 3 It is better to use more than five colors in the design to make it attractive ( )
- 4 The images used in the poster should match the content and be high-quality ( )
- 5 Microsoft Word can also be used to design posters ( )
- 6 If the content is too close to the edges, the poster will look visually attractive ( )
- 7 Testing the hypothesis should not include any risk to the device you are using ( )
- 8 To access Microsoft 365, you need an updated digital device ( )
- 9 We do not need to consider the color of the background color when choosing the font color ( )
- 10 The image in the poster should be unclear to encourage the audience to focus on the text ( )



### Choose the correct answer:

1 – Which tool is considered the best for designing a digital poster or advertisement tool?

A – Microsoft Word                      B – Microsoft PowerPoint                      C – Microsoft Publisher

2 – What is the name of the empty space around the edges of the poster?

A – Background                      B – Colors                      C – Margins

3 – What is the maximum number of colors recommended for a single poster?

A – Five colors                      B – Less than three colors                      C – Ten colors

4 – If the font you use is complicated it .....

A – Strongly attract the attention

B – Distract and make it difficult to read

C – Increase the image quality

5 – When using images in posters, the images should be ....

A – Unclear

B – Not relevant to the topic

C – Clear, high quality and relevant to the topic

6 – The Word processor (Word) is part of which Microsoft package?

A – Microsoft 365

B – Vlaby

C – Google Drive

7 – What is the visual problem if you add content too close to the edges of the poster?

A – The poster will look wee-designed

B – The poster will look crowded and lack proper margins

C – It will increase the quality of the poster

8 – What should you check in your computer before installing Microsoft 365 programs?

A- It is very old

B- It is not connected to the internet

C- It is updated to run the program

9 – When choosing colors, you should consider the color of .....

A – Your computer

B - The type of font only

C – The background

10 – In general, when choosing the font in a design it should reflect.....

A – Complexity

B – Ambiguity

C - Simplicity

# Algorithms

## UNIT 4

## Lesson 3

### Algorithm



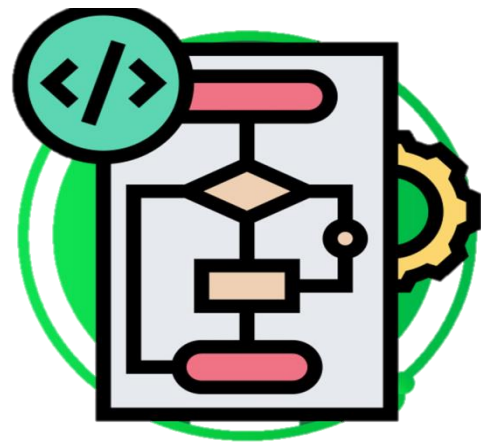
It is a set of clear instructions and a series of organized steps to :

- Solve a particular problem

- Do a specific task

An Algorithm to add two numbers

Example



- 1 Start
- 2 Enter the first number (A)
- 3 Enter the second number (B)
- 4 Calculate the sum  $C = A+B$
- 5 Show the result (C)
- 6 End

### Basic Features of Algorithm

- 1 **Definiteness (Clarity & Accuracy):** Every step should be clear and not confusing
- 2 **Input:** It should accept zero or more inputs
- 3 **Output:** It should produce at least one output which is the solution
- 4 **Finiteness:** The Algorithm should stop after a limited number of steps.
- 5 **Effectiveness:** Every step should be applicable

### Algorithms and Search Engine

**Way to use Algorithm Search Engine:**  
Type keywords you search for in the Search Engine. The engine uses smart algorithm to provide you with the most relevant result to your search.

**Search Accuracy:** Choose the accurate keywords when searching.

- If your words are not clear enough, the search engine's algorithm may not give you accurate results



6 – What happens if your keywords are not clear enough?

A – The search engine's algorithm will be very accurate

B – The search engine's algorithm may not give the accurate results

C – The room will be cleaner

7 – A recipe to make a meal (like a falafel sandwich) is an example of .....

A – A complicated problem

B – A kind of an algorithm

C – A random result

8 – You should choose ..... carefully when searching for information.

A – The color of the background

B- The correct keywords for your search

C – Your bedtime

9 – What is the first step of an algorithm to clean a room?

A – Clean the floor

B – Clean the dust

C – Leave the room

10 – Computers and application use algorithm to .....

A – Perform specific task

B – Send spam messages

C – Cook food

Programming: The Computer Language  
and Game Development

UNIT 4



## Coding

- It is the computer's own language; it is like writing a very big recipe.
- It is the writing of multiple algorithms to make a complete program.



## Algorithms

Algorithms are instructions and steps that tell the computer what to do, like:

- Solve a math problem
- Make a falafel sandwich

## Coding and the world of Technology

When we look at the things we use daily, we find that Coding enters in most of them, like:

## Entertainment

Online animations, movies and online games are created and designed using Coding

## Creativity

You can create animations, movies, and video games using Coding

## Smart Devices

Computers and application use Algorithm (The Base of Coding) to perform specific tasks.

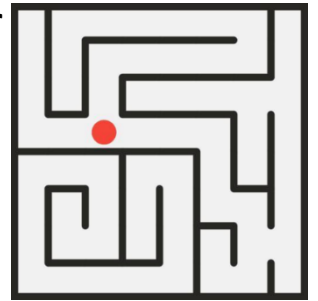
## Computational Thinking and Problem Solving

Coding teaches you how to think logically, when you code, you give clear instructions to the computer .

### Maze

• Coding asks you thinking in a number of steps to allow the computer pass this maze. For example when solving the maze, Coding Instructions are like:

- Move two steps up
- Turn one step left, and so on



**Helping Tools** There are many website help you to learn Coding, **like:** Code.org

### 4

## Exercise Lesson 4

### Put (✓) or (X):

- 1 Coding is writing multiple algorithms to create a complete program ( )
- 2 Movies and animation are not created using Coding ( )
- 3 Algorithms are the base of coding and are instructions given to a computer ( )
- 4 You can create video games using Coding ( )
- 5 Code.org is an example of websites that help you learning Coding ( )
- 6 Coding cannot be used to mazes or problems that need a series of steps ( )
- 7 When you code, you give clear instructions to a computer program ( )
- 8 each engines use a map database to give you directions to place ( )
- 9 Coding does not help you think logically to solve problems ( )
- 10 Coding is a very difficult language and children cannot learn it ( )



## Exploring Scratch Program

### Unit 4



### Learning Coding for Children



There are many applications that use block-based coding to teach programming children, **for example:**

#### 1 Scratch

- It is a learning environment that uses a programming language designed for your age
- It helps turn ideas into stories and interactive games easily.



#### 2 Tynker

- It is a learning environment for kids to learn the basics of Coding
- It provides a large collections of lessons and and projects.
- It uses a block-based coding interface like **Scratch**, and also supports programming languages such as :**JavaScript and Python**.
- It uses story-based lessons, starting with block-based coding, and then moving on to text-based languages like Python and JavaScript.
- Website: <https://www.tynker.com>



#### 3 Blockly

- It is an open source visual programming, like Scratch as a block-based interface.
- It allows users to (drag and drop) blocks to solve puzzles and complete tasks.
- It can be also integrated with other programming languages like Payton and JavaScript .
- Website: <http://blocky.games>



### Scratch

Scratch uses blocks instead of writing complex codes and commands. It works with the following steps:

#### Blocks

Blocks are **commands**. Each colored block represents a specific command, such as :  
“**Move**”, “**Say**”, “**Play sound**”

#### Script

You drag and drop the blocks and connected them together, just like stacking colored building blocks.

#### Sprite

A group of connected blocks together called (**Script**) that gives instructions to **Sprite** ( The Character or object on the screen)

## How to Run Scratch

### Online

- Go to the official website of Scratch( you can ask your teacher help)
- <https://scratch.mit.edu/projects/editor/?tutorial=getStarted>

### The Application

- You can download the application on your computer to work offline without the internet



## Scratch Main Screen

### 1 Stage

This is the display screen, the place where your project appears (Sprites move and interact here)

### 2 Blocks Area

It is the library that contains all the colored commands (motion, looks, sound) .

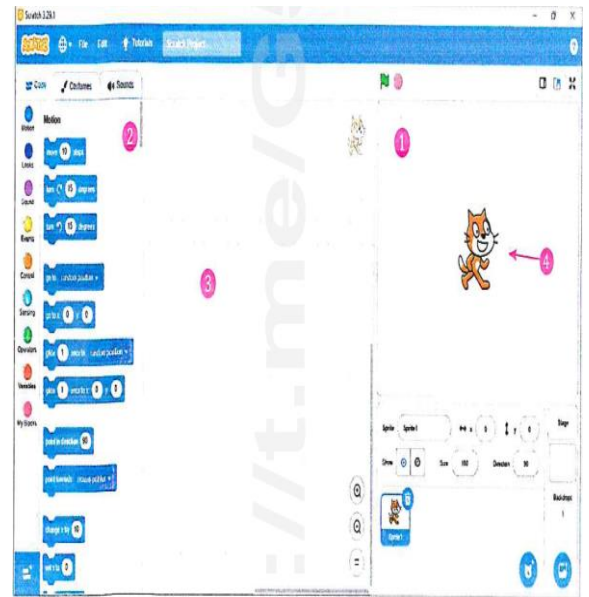
### 3 Script Area

It is your workplace, here you can drag blocks and assemble them to create

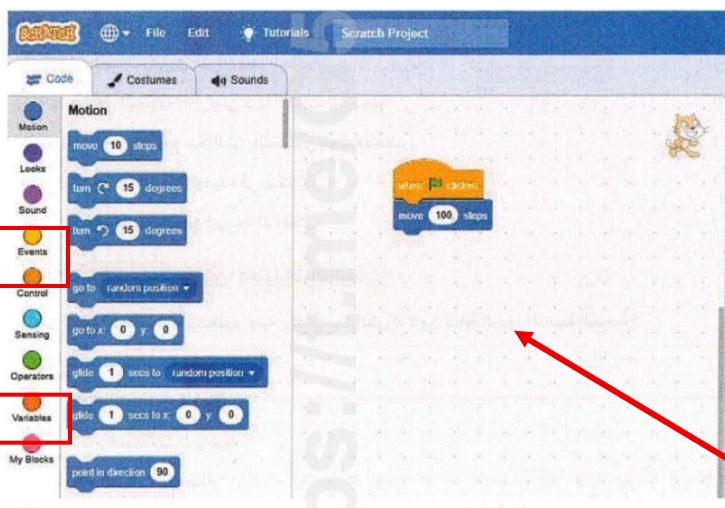
### 4 The Default Sprite

The first Character you see in Scratch is the (Cat Sprite).

It is ready to follow your commands.



## Practical Exercise



Run



Click the green flag and watch the Cat run

**Target:** Make the Cat Sprite move 100 steps when you press the start button.

### Start

- 1 – From the “Events” category (yellow) drag the block



### Creativity

- 2 – From the “Motion” Category (blue) drag the block “Move 100 steps” under the start block.



## 5

## Exercise Lesson 5

**Put (✓) or (X):**

- 1 Scratch uses text-based coding like Python ( )
- 2 Blocks in Scratch help students code without writing text commands ( )
- 3 Sprites in Scratch can move, talk, and make sound ( )
- 4 You cannot change a sprite's look in Scratch ( )
- 5 Java Script Language does not support Tynker Program ( )
- 6 The Blocks Area contains all the available commands ( )
- 7 The Stage is the area where you build the programming blocks ( )
- 8 You can run a Scratch project by clicking on the green flag ( )
- 9 You cannot add new sounds in Scratch ( )
- 10 Scratch is suitable for teaching programming to children ( )

**Choose the correct answer:**

1 – What is the basic system Scratch uses instead of writing complex text codes?

A – Complex codes

B – Blocks

C – Math formulas

2 – On which part of the Scratch screen can you view the output of your project?

– Script

B – Blocks

C – Stage

3 – What is the term for a group of connected blocks that give commands to a sprite?

A – Sprite

B - Block

C – Script

4 – The sound orders are in the .....

A – Stage

B – Script

C – Blocks

5 – Which block-based coding application also supports text-based languages like Python and JavaScript?

A – Scratch

B – Tynker

C – Blockly

6 – In which category of blocks can you find the block “Move 100 steps”?

A – Events ( yellow )

B – Motion ( blue )

C – Looks ( purple )

7 – What is the default Sprite that appears when opening Scratch?

A – Soccer ball

B – Scratch Cat

C – Horse

8 – Which block category contains the block “when green flag clicked” which represents the start block?

A – Looks

B – Control

C – Events

9 – What is the function of the block “Move 20 steps”?

A – Repeat the move twice  
Scratch Cat a sound

B – Move the Scratch Cat 20 steps

C – Make the

10 – Which of the following is an open- source visual programming language and can be integrated with other languages like Paython?

A – Movie Maker

B – Paint

C – Blockly

## Graphic Art: Creating and Editing Digital Images

### UNIT 4



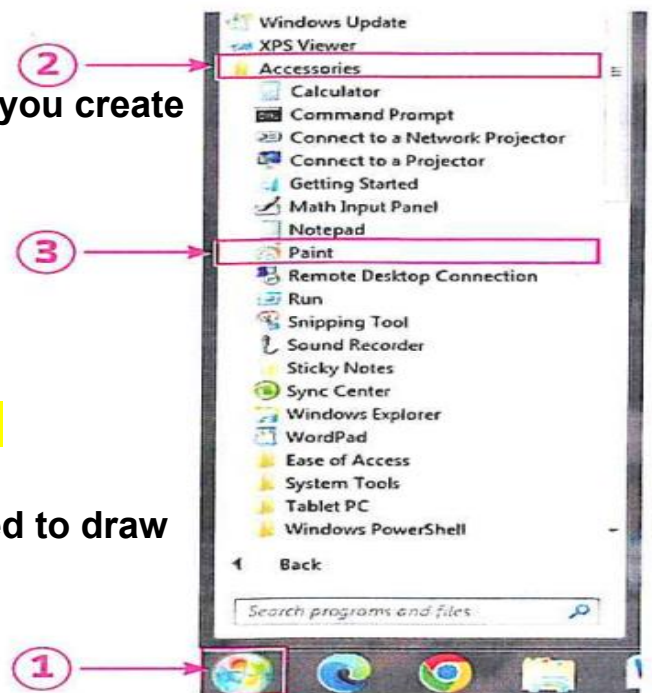
## Graphic Art

- It is creating and editing of digital pictures and paintings.
- It depends on Drawing and painting tools available in Graphic Art Program



### Microsoft Paint

- It is a popular graphic editor that will help you create your own drawings or edit images
- **Steps to open the program**
  - 1 –Click (Start up) menu
  - 2 – Click the folder (Accessories)
  - 3 – Click the program (Paint)
- **When you open the program, you will find:**
  - 1 –Menu Bar
  - 2– Toolbox: it contains all the tools you need to draw and color



## Word

It offers graphic tools to create graphics, **such as** :

Shapes



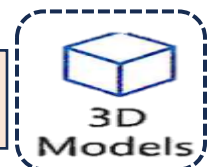
SmartArt



Icons



3D Models



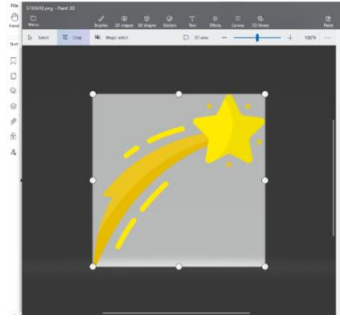
You can reach it by clicking on (Insert) in (Menu bar)

## Some Tools of the Tool Box

### Cropping



It means selecting a specific part of the picture and then removing the rest



### Adding Text



Click on the bottom-right corner of the photo, then drag the your mouse to the right until you have enough space to write your text



### Change Colors and Size

You can fill colors using the color options in Paint. You can also change the size of the picture or its direction.

## 6 Exercise Lesson 6

### Put (✓) or (X):

- 1 Paint Program is used to create drawings and edit pictures ( )
- 2 The process of selecting certain parts of a picture and removing the rest is called cropping ( )
- 3 The process of selecting certain parts of a picture and removing the rest is called cropping ( )
- 4 You can change the size or direction of a picture using Paint ( )
- 5 When you open Paint, you will find the available tools in the Menu Bar and Toolbox ( )
- 6 You cannot fill colors using the color options in Paint ( )
- 7 To add text to a picture in Paint, you will find available tools in Menu Bar and Toolbox ( )
- 8 Popular programs for editing pictures and drawings exist only on mobile phones ( )
- 9 The graphic design tools in Word can be accessed from the "Insert" tab. ( )
- 10 Algorithms are the main tools in Paint ( )



### Choose the correct answer:

1 - ..... is a popular program used to edit pictures and drawings

- A – Publisher
- B – Microsoft Paint
- C – Google Chrome

2 – To select only a specific part of a photo, and delete the rest is called.....

- A – Painting
- B - Cropping
- C – Adding Text

3 – Where can you find graphic tools like shapes and icons in Word?

- A – In the Menu Bar
- B – in the Insert Menu
- C – in the Start Menu

4 - When you open Paint, where can you find the available editing tools?

- A – Search Engine
- B – Menu Bar & Tool Box
- C – in Settings

5 – To add text in Paint, you should drag the .....

- A – Close button
- B – Mouse pointer to the right
- C – Menu Bar

6 – What can you change in a picture using Paint?

- A – The whole picture theme
- B – The size or direction
- C – The designer's name

7 – Paint Program is a part of .....

- A – Internet Browser
- B – Video Games
- C – Accessories in the Start Menu

8 – Word can help design graphic elements like .....

- A – Emails
- B – Map databases
- C – Shapes and charts



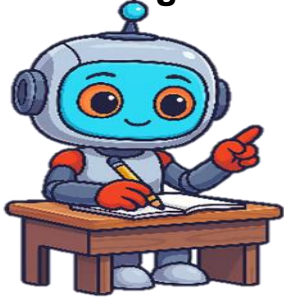


9 – To open Paint Program, you search for it in the .....

- A – Tools
- B – Start up Menu
- C – Presentations

10 – Graphic Art is a field that focuses on .....

- A – Writing long texts
- B – Creating and editing pictures and drawings
- C – Sending emails



### A Summary on Unit 4

Term	Definition
Steps to solve a problem	Construct a Hypothesis- Test the Hypothesis- Learning from mistakes
Hypothesis	It is an educated guess about how the problem happened
Test the Hypothesis	Do not try any test that may damage your device
Learning from Mistakes	A stage of trying and mistakes. If your test does not work, think: what is the mistake? And what do you learn?
Digital Tools for Presenting Information	Power Point Word Publisher
Power Point	It is used to create attractive slides (presentation)
.Word	It is used for writing texts and simple posters
Publisher	It is a professional program used to design posters and flyers in an organized way
Margins	It is the empty space around the edges of a poster or a billboard
Colors	It helps sending a message and taking attention. It is preferable not to add more than three colors
Images	Use clear, high-quality and appropriate images
Font Type and Size	Simple fonts are better than complicated fonts which distract attention and hard to read
Algorithm	It is a set of clear instructions and a series of organized steps to: solve a particular problem or do a specific task
Definiteness	Every step should be clear and not confusing
Input	It should accept zero or more inputs

<b>Output</b>	It should produce at least one output
<b>Finiteness</b>	The algorithm should stop after a limited number of steps
<b>Effectiveness</b>	Every step should be able and simple to perform
<b>Algorithms Search Engines</b>	The engines use smart algorithms to provide you with the most relevant results for your search
<b>Search Keywords</b>	Try to choose the right words when you collect information to get the accurate results
<b>Coding</b>	It is the writing of multiple Algorithms to make a complete program
<b>Algorithms</b>	It is a set of clear instructions and a series of organized steps to: solve a particular problem or do a specific task
<b>Uses of Coding</b>	Entertainment – Creativity – Smart Devices
<b>Scratch</b>	It is a programming language specially designed for your age. It turns the ideas to interactive games and stories in an easy way
<b>Tynker</b>	It is a learning environment that uses a programming language to teach coding for kids. It supports programming languages like <b>Java Script</b> and <b>Python</b>
<b>Blockly</b>	It is an open-source visual programming language. It is like Scratch as a block-based interface(drag and drop).it can be integrated with <b>Python</b> and <b>Java Script</b>
<b>Blocks</b>	They are the commands, every colored block is a ready order
<b>Script</b>	It is a group of connected blocks that gives instructions to a Sprite
<b>Stage</b>	It is the display screen; it is the place where your project appears
<b>Blocks Area</b>	It is the library that contains all the colored commands
<b>Script Area</b>	It is your work space; you can drag blocks and assemble them to create commands
<b>Sprite</b>	It is the first character you see on the screen is the default cat ( <b>Scratch Cat</b> )
<b>•Microsoft Paint</b>	It is the creating and editing of digital pictures and drawings
<b>Word</b>	It offers graphic tools to design graphics, such as: Icons Shapes 3D Models Smart Art You can reach it by clicking on Insert tab in Menu Bar
<b>Cropping</b>	Choose the part of the picture you want and remove the rest
<b>Adding Text</b>	Click on the bottom right corner of the photo, then drag your mouse to the right to have enough white space to write
<b>Paint Program Tools</b>	<b>Cropping – Add Text – Change Color and Size</b>

## Answer Keys on Unit 4

### Lesson 1

Put (√) or (X)			
1	√	6	√
2	X	7	X
3	X	8	√
4	√	9	√
5	X	10	√

### Choose the correct answer:

1	A hypothesis	6	Doing tests that may put the device at risk
2	Break it into small parts and solve gradually	7	A small part of the problem
3	To know if the hypothesis failed and learn from your mistakes	8	Ask the teacher or specialists for help
4	Break it into small tasks	9	Assign a small part for each person to solve
5	What went wrong and how it helps you build a better hypothesis	10	

### Lesson 2

Put (√) or (X)			
1	√	6	X
2	√	7	X
3	X	8	√
4	√	9	X
5	√	10	X

### Choose the correct answer:

1	Microsoft Publisher	6	Microsoft 365
2	Margins	7	The poster will look crowded and lack proper margins
3	Less than three colors	8	It is updated to run the program
4	Distract and make it difficult to read	9	The background
5	Clear, high-quality and relevant to the topic	10	simplicity

### Lesson 3

Put (√) or (X)			
1	√	6	X
2	X	7	X
3	√	8	√
4	X	9	X
5	√	10	X

### Choose the correct answer:

1	Algorithm	6	The search engine's algorithm may not give the accurate
2	algorithms	7	A kind of algorithm
3	Dividing the question into parts and follow a set of steps	8	The correct keywords for your search
4	A database of names and information from digital maps	9	Clean the dust
5	Enter the keywords	10	Perform specific task

## Lesson 4

<u>Put (√) or (X)</u>			
1	√	6	X
2	X	7	√
3	√	8	√
4	√	9	X
5	√	10	X

<u>Choose the correct answer:</u>			
1	coding	6	A series of steps to pass the maze
2	Animation, movies, video games online	7	programming
3	problems	8	Specific tasks
4	algorithms	9	Instructions on how to use
5	Code.org	10	Create and design games and videos

## Lesson 5

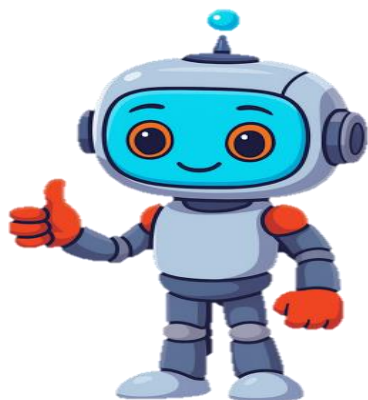
<u>Choose the correct answer:</u>			
1	Blocks	6	Motion (blue)
2	stage	7	Scratch Cat
3	script	8	events
4	blocks	9	Move the scratch Cat 20 steps
5	tyinker	10	Blockly

<u>Put (√) or (X)</u>			
1	√	6	√
2	√	7	X
3	√	8	√
4	X	9	√
5	X	10	√

## Lesson 6

<u>Put (√) or (X)</u>			
1	√	6	X
2	√	7	√
3	X	8	X
4	√	9	√
5	√	10	X

<u>Choose the correct answer:</u>			
1	Microsoft Paint	6	The size or direction
2	Cropping	7	Accessories in the Start Menu
3	In the Insert Menu	8	Shapes and charts
4	Menu Bar & Tool Box	9	Startup Menu
5	Mouse pointer to the right	10	Creating and editing pictures and drawings



تطبيق



مذكرات جاهزة للطباعة

لتحميل الملفات التعليمية مجاناً للمعلم والطالب

مذكرات وملازم / مراجعات وملخصات / امتحانات / كتب الوزارة /  
أدلة المعلم / دفاتر التحضير / سجلات مدرسية / أوراق تأسيس

امسح الكود بموبايلك علشان تقدر تثبت التطبيق

وتقدر ف أي وقت تحمّل ال نفسك فيه ببلاش

هيغنيك عن البحث والجروبات والقنوات الكثيرة

