

Robotics

DIGITAL WORLD



Teacher guide

Book 6

Robotics DIGITAL WORLD

Book 6

Windows 10

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**Dar
CHAD ALAJJAL**
For Publishing & Distributing
Tel. +962 6 515 7 555
Fax. +962 6 515 7 550
Mob. +962 7 77 08 00 09
P.O.Box 1995 Amman-11941 Jordan
info@ajyall.com

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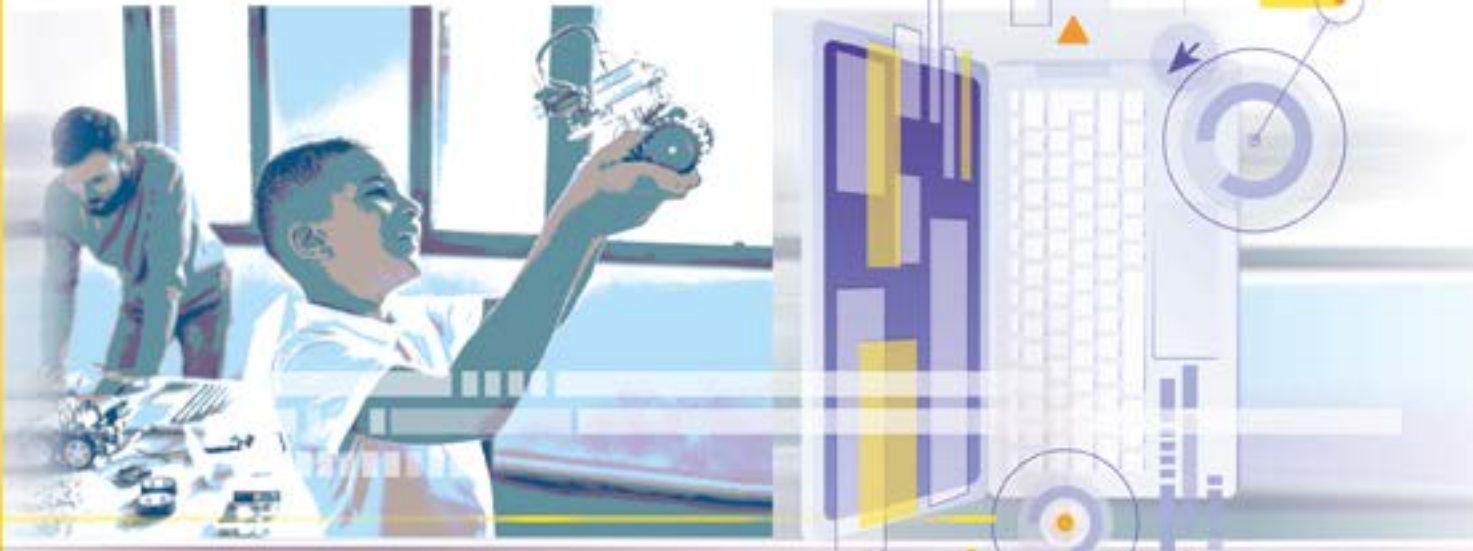
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يتحمل المؤلف كامل المسؤولية القانونية عن محتوى مصنفه ولا يعبر هذا المصنف عن رأي دائرة المكتبة الوطنية أو أي جهة حكومية أخرى.



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• The Production of:
DAR GHAD AL AJYAL
for Publishing & Distributing

• Education Consultant
Kifaya Al Ghouti

• Art & Design Director
Naseem M Imtair

• Designer Assistant
Sara Abu Al-Haj

• Editor
Tasneem Al Khateeb

Computer and Life

 10
Windows



1
Unit



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Unit Learning Outcomes

Upon completion of this unit students will be able to:

- Explain the meaning of social media and mention its types.
- Highlight the most important features of social networking sites.
- Show the positive and the negative impact of social media on individual and society.
- Enumerate the risks of computers and Internet.
- Suggest practical steps to reduce the internet risks.
- Define the digital citizenship.
- Define the specifications of the digital citizen.
- Express the themes of digital citizenship.
- Mention the basic rules that make a person a good digital citizen.

Lesson 1: Social Media

Learning Outcomes

Students will be able to:

- Explain the concept of social media.
- Enumerate the types of social media, and cite examples.
- Mention the advantages of social networking sites.
- Distinguish the positive and negative effects of social media.

Time needed

One class lesson

Teaching strategies and classroom management

1. Active learning/ Role Playing.

Warm Up

Pre-preparation of the class:

- Install the E-exam (Social Media) on the devices.
- Select a group of students who has the ability to act to perform the following roles: (a student who represents the role of social media, a student who represents the role of a judge and a student who represents the role of a defense lawyer for social media, another who represents the role of a prosecution lawyer) and assigns them to read the lesson well in advance.

Instructions

- Print the cards (judge, social media, prosecution lawyer, defense lawyer).
- The judge begins the conversation by asking the defendant, social media, to identify himself.
- A student who represents the role of social media begins by introducing himself and his types.
- The student representing the role of the prosecution brings some charges against the defendant (the negative effects of social media).
- The student who plays the role of defense defends by highlighting the positive features and effects of social networking sites.

- The debate is going on between them.
- Start a dialogue with the rest of the students through open questions, who supports the idea that social media sites are accused sites and their negative effects are more than positive ones, and why? Who opposes this idea and why?
- The judge acquits social media sites from the charges, because their positive or negative effects stem from the people's use of them.
- Distribute **worksheet (1)** and follow up their work and evaluates them.

Evaluation Strategies

- Communication - Questions and Answers / Observation.
- Performance-Based Assessment - Role Playing

Evaluation Tools

- Plickers / E- assessment.

Lesson 2: Internet Risks

Learning Outcomes

Students will be able to:

- Enumerate some of the risks of computers and the Internet.
- Put the right steps to eliminate some of internet risks.
- Committed to the correct ways of dealing with computers and the Internet.

Time needed

One class lesson

Teaching strategies and classroom management

1. Cooperative Learning-Jigsaw.

Warm Up

- Ask the students about the importance of using the Internet in our life and the number of hours they spend using an IT tool.

Instructions

- Use clasdojo to divide the students into four groups randomly.
- Ask the groups to choose one of the internet risks, read the paragraph, write their own notes, and solve activities related to their topic.
- Reconfigure new groups so that they consist of a member from each old group.
- Each member of the new groups explains their topic to the rest of the group.
- Members return to the first groups.
- The teacher opens the door for dialogue and discussion of all the topics of the lesson to clarify the concepts.
- View the attached video (internet advantages and disadvantages) in the multimedia folder.
- Distribute Worksheet 2 to the students and follow up their work.

Resources

- [Worksheet 2](#).

Evaluation Strategies

- Communication - Questions and Answers.
- Performance-Based Assessment/ Observation .

Evaluation Tools

- Exit card.
- plickers.

Lesson 3: Digital citizenship

Learning Outcomes

Students will be able to:

- Define digital citizenship.
- Enumerate the characteristics of a digital citizen.
- Enumerates and emphasizes the basic rules of good digital citizenship.

Time needed

One class lesson

Teaching strategies and classroom management

- Direct teaching.
- group cooperative learning.
- Word meaning.

Warm Up

- Read the steps of the word meaning strategy well.
- Print the form of the strategy from the appendices in the number of class students.
- Install the E- exam (Digital citizenship) on the devices.

Instructions

- Distribute the form to the students and ask them to fill it according to the accompanying key.
- Divide the students into small groups and discuss the meaning of words.
- Follow the work of the students, and guide them.
- Choose one of the videos attached to the Multimedia folder (Digital citizen, Digital citizenship) and display it in front of the students.
- distribute the form of cause-and-effect to the groups form the appendices.
- Summarize the most prominent ideas.
- Follow the work of the groups and give feedback.

Resources

Evaluation Strategies

- Communication / Questions and Answers.
- Cause and effect.

Evaluation Tools

- plickers.

Microsoft Excel 2019

10
Windows



2
Unit



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Unit Learning Outcomes

Upon completion of this unit students will be able to:

- launch Excel program and remembers the components of the main screen.
- Specify the concepts of: active cell and its contents, the vertical range, and the horizontal range.
- Input data, and format it,
- Write simple arithmetic formulas.
- Recognize numeric formats.
- Change the number of rows and columns.
- Adjust the size of cells.
- Organize worksheets (rename, copy or move).
- Arrange data in ascending or descending order.
- Use **find and select** command to search for data.
- Insert images, shapes, and charts.
- Appreciate the role of the Excel program in facilitating calculations.

Lesson 1: Basic skills

Learning Outcomes

Students will be able to:

- Run Excel program.
- Remember the components of the main screen.
- Specify the active cell, the vertical range and the horizontal range.
- Enter and format data.
- Write simple arithmetic formulas.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Group Cooperative Learning.
2. Direct Teaching - Worksheets – Lecture.

Warm Up

- Install the E-exam (let's Start Microsoft Excel) on the devices.
- The teacher divides the students into groups.
- Distribute the topics of the lesson to the groups so that each group studies its topic well.

Instructions

- Choose a student from each group to explain the topic of his group to the other groups and to apply practically using the projector.
- direct the groups to solve the activity on page (22).
- Follow up and guide the students.
- Direct the groups to answer E-exam.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.
- E-assessment.

Lesson 2: Numeric Data Format

Learning Outcomes

Students will be able to:

- Recognize the digital format.
- Add a number format to the numeric data.
- Increase and decrease the number of decimal places.
- Add the currency symbol to numeric data.

Time needed

Two class lessons

Teaching strategies and classroom management

- Group learning - colleague training.
- Direct teaching – lecture
- Brainstorming.

Warm Up

- Install the E-exam (Numeral data) on the devices.
- Prints **Worksheet 1** from the Appendices.
- Write the following numbers on the board and ask the students what do these numbers mean to them.
- (20, 98, 88.2, 100, 500, 1000, 9500, 32, 28)
- You can put the numbers indicating the temperature on that day or any other numbers depending on the situation.

Instructions

- listen to the students' answers, some may say that the numbers represent an exam scores, others may say temperature degrees, and so on.
- Explain that this means we cannot correctly guess the meaning of numbers if there is no other information to indicate them. So we need the **number formats**.
- Explain the steps for adding **number formats** from the **number** group.
- Direct the students to apply (Do & Observe) on page 24.
- Direct the students to apply the activity on page 27.
- Direct the students to apply (Do & Observe) on page 28.
- Ask the groups to execute **Worksheet 1**.
- Evaluate the students using the e-exam.

Resources

- **Worksheet 1**

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.
- E-assessment.

Lesson 3: Cells Format

Learning Outcomes

Students will be able to:

- Insert a cell.
- Insert columns and rows to the worksheet.
- Insert worksheets to the workbook.
- Delete cells.
- Delete rows and columns from the worksheet.
- Delete a worksheet.
- Adjust the size of the cells.
- Organize worksheets (rename, copy, and move).

Time needed

Two class lessons

Teaching strategies and classroom management

1. Group learning - colleague training.
2. Direct teaching.
3. Exploration.

Warm Up

- Print Worksheet 2 and distribute it to groups.
- Introduction to the class: begin by reading the following status: (A teacher enters the names of the students in the excel sheet in alphabetical order, and after completing them, a new student moved to the school. How can he add the student name in the correct place?)

Instructions

- Through the previous narrative, students conclude that they must know how to add or delete rows and columns.
- Apply the steps of inserting cells, rows, columns and sheets, and ask the students to implement the steps and each proficient student will train his colleague.
- Ask the students to explore how to delete cells, rows, columns and sheets.
- Follow up and guide the groups.
- In each group, a student must be acting as a reporter so that he moves to other groups and takes experience and information from them and transfers it to his group.
- Explain the steps of format commands using the data show projector.
- Evaluate the students by carrying out the activities on pages (32, 35, 38).
- Distribute worksheet 2 and follow up the students work

Resources

- **Worksheet 2**

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.

Lesson 4: Edit Data

Learning Outcomes

Students will be able to:

- Arrange data in ascending or descending order.
- Use filters to show data that meets certain conditions.
- Search for certain data.
- Replace specific data with another.
- clear data.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Team work.
2. Direct teaching – lecture.

Warm Up

- install the E- exam (Data Edit) on the devices.
 - Print worksheet 3 with the number of groups.
 - Pre-class: write the names of some students on the blackboard in no order and ask one of the students to arrange them according to the alphabet.
-
- This box lists the skills the students should already have before starting the unit.

Instructions

- Use the data show to Perform the steps of arranging the names in excel.
- Ask the groups to apply the previous skills, and follow up their work.
- -Ask the groups to explore the other skills in the lesson, and support them when neededDirect the groups to work on the activities in the lesson.
- Choose one student from each group to apply the steps Infront of the class using data show.
- distribute **Worksheet 3** to students, and follow up their work.
- Evaluate the students using the e- exam.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.
- E- assessment.

Lesson 5: Insert Menu

Learning Outcomes

Students will be able to:

- Insert pictures.
- Insert shapes
- Insert charts.
- Understand the importance of using pictures, shapes and charts to illustrate ideas.

Time needed

One class lesson

Teaching strategies and classroom management

1. Group Collaborative Learning.
2. direct teaching.

Warm Up

- Print worksheet 4 with the number of students.
- Ask the students: who like to try to insert a picture in the worksheet?

Instructions

- Choose a student to apply the steps of inserting a picture.
- Ask each group to explore one of the skills in lesson, apply the steps and share experience with other groups.
- Choose a student from each group to apply the steps using data show.

- Direct the students to apply the activities in the lesson, follow up their work and support when needed.
- Distribute **worksheet 4**, and follow up the students work.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.

Lesson 6: I am A skillful data Organizer

Learning Outcomes

Students will be able to:

- Use all the skills they have learned in Excel program to organize information.
- Perform calculations using Excel software
- Enhance and support data and tables with appropriate images and charts.
- Develop communication and collaboration skills among colleagues.
- increase self-confidence as a result of doing useful work.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Group Collaborative Learning.
2. Project based Learning.

Warm Up

- Students gather in groups and determine the topics they will work on. They can choose one of the topics in the book pages 52 and 53, or can choose other purposeful topics.

Instructions

- Ask the groups about the topics they will work on, and the reason of choosing them.
- Determine the criteria of evaluation (from the appendices).
- Follow up the students, evaluate their projects, and present the outstanding projects on the school's open day.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Numerical Estimation Scale

10
Windows

Construct 2



3
Unit

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Office 2019

Unit Learning Outcomes

Upon completion of this unit students will be able to:

- Specify the steps of making a game.
- Open construct 2 program.
- Recognize the components of the main screen.
- Save a project in a specified name.
- Open a saved project.
- Save the project as single file.
- Create a new empty project.
- Add a sprite to the project.
- Add the movement behavior.
- Add event to the sprite.
- Add background
- Add action to the sprite.
- Run the game.

Lesson 1: Game Making

Learning Outcomes

Students will be able to:

- Specify the steps of making a game.
- Determine the suitable device to make a game.
- Suggest ideas for useful games.

Time needed

One class lesson

Teaching strategies and classroom management

1. Group cooperative learning.
2. Direct- lecture.

Warm Up

- Display a game for few minutes (super Mario, minecraft... etc)
- Ask the students: what are the games you like to play? you like to make your own game? Why?

Instructions

- Discuss the student's ideas and write on the board the programs that are used to make games such as Construct 2.
- Direct the students to read the stages of making a game in 20 min, and ask them to express the stages in an appropriate way (concept map, drawing, shapes...).
- Ask the groups to display their work and discuss with teacher and colleagues.
- Direct the groups to solve the activities on page 56,58,59.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.

Lesson 2: Let's Start With Construct2- File Menu

Learning Outcomes

Students will be able to:

- Open construct 2 program.
- Recognize the components of the main screen.
- Save a project in a specified name.
- Open a saved project.
- Save the project as single file.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Group cooperative learning.
2. Direct teaching – lecture.
3. Exploration.

Warm Up

- Review the steps of opening the previous programs and ask the students if they expect the steps of opening construct2 are the same.

Instructions

- Ask the students to open construct2 program.
- Direct the groups to explore the main screen components.
- Use data show to explain the components of the main screen.

- Direct the students to explore the file menu.
- Use data show to explain the commands of (Save, Save as project, Open, New, Close project, Exit).
- Direct the students to do activities on page 68.
- Distribute **worksheet1**, follow up their work.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.

Lesson 3: My Fast Car

Learning Outcomes

Students will be able to:

- Create an empty project.
- Add a sprite.
- Add a movement behavior.
- Run the game.
- Save the game project.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Group work.
2. Direct Teaching – Lecture.

Warm Up

- Install the folder (images) on the desktop.
- Review the commands of the main menu.
- Ask the students to describe the car movement.

Instructions

- Ask the students to create a new project and save it as **(My Fast Car)**.
- Use data show to explain how to add a sprite (**car** picture) from the images folder.
- Ask the students to add a sprite (**car**) to their project.
- Use data show to explain how to add a movement (**car**)
- Ask the students to add a movement (**car**) to their project, follow up their work.
- Ask the students to run the game.
- Direct the students to apply **(Do & Observe)** on page 74.
- Direct the students to choose one of the projects on page 75, follow up the students work

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.

Lesson 4: Sport Player

Learning Outcomes

Students will be able to:

- Add a picture (player).
- Add a behavior (8 Direction).
- Copy the sprite on the workspace.
- Add the event (on collision with).
- Add the action (destroy).
- Add background.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Direct Teaching
2. Collaborative Learning.
3. Exploration.

Warm Up

- Review the meaning of behavior and action.
- Ask the students to describe the sport player movement and the ball movement.

Instructions

- Ask the students to create a new project and save it as **(sport player)**.
- Ask the students to add a sprite **(player)** to their project as they learn before.
- Ask the students to add a movement **(8 direction)** to their project as they learn before, follow up their work.
- Use data show to explain how to add a set of **balls** to the workspace.
- Ask the students to add balls to their project
- Ask the students to add a movement **(8 direction)** to their project, follow up their work.
- Use data show to explain how to add event and action.
- Ask the students to apply the steps, support them when needed.
- Use data show to explain how to add background.
- Ask the students to apply the steps.
- Direct the students to apply (Do & Observe) on page 83.
- Direct the students to choose one of the projects on page 85, follow up the students work
- Ask the students to run the game.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.

Lesson 5: Eco-Friendly Ship

Learning Outcomes

Students will be able to:

- Add a picture (ship, rock).
- Add a behavior (8 Direction).
- Copy the sprite on the workspace.
- Add the event (on collision with).
- Add the action (restart layout).
- Add background.
- Save the game.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Reciprocal teaching.
2. Collaborative Learning.

Warm Up

- Review the previous skills.

Instructions

- Direct the students to use the skills they have learned in the previous lessons to make the echo ship game.
- Ask the students to follow the steps in the lesson.
- Follow up the students work, and support when needed.
- Ask the groups to share experience with each other.
- Choose student from each group to present the steps of one skill.
- Direct the groups to choose one of the projects on page 94.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.

Robotics



4
Unit

Unit Learning Outcomes

By the end of the unit, the students should be able to:

- recognize the audio category blocks.
- record a sound using mBot2.
- play the recording sound.
- learn how ultrasonic sensor works.
- add the ultrasonic sensor blocks to mBlock.
- recognize the ultrasonic sensor blocks.
- use the ultrasonic sensor blocks.
- learn what quad RGB sensor is.
- add the quad RGB sensor.
- recognize the usage of quad RGB blocks.
- use quad RGB blocks.
- learn gyroscope and accelerometer sensors.
- use gyroscope and accelerometer sensors blocks.
- build a program that use gyroscope and accelerometer sensors blocks.

Lesson 1: Listen to mBot2

Learning Outcomes

- To recognize the audio category blocks.
- To record a sound using mBot2.
- To play the recording sound.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Direct teaching.
2. Collaborative Work.
3. Brain storming.
4. Think- discuss – share.

Did the students remember?

- The blocks categories and the usage of each one.
- The sensors that CyberPi contains.

Preparing the portion

- Print **worksheet (1)** according to the number of the students.
- Divide the students into groups.

Warm Up

- Distribute worksheet (1) to the students and let them answer it in groups.
- Answer the worksheet with students to correct any mistake.
- Display CyperPi and remind them about the sensors that it has.
- Let the students answer the activity p.97, follow the students up and correct the activity on their books.

- Ask the students, where do we need to use audio in robots?
- Listen to their answers and reach with them that it is important to avoid any dangerous.

Instructions

- Open mBlock program.
- Click on the Audio category blocks to show the audio blocks.
- Make a brainstorming about the using of each block, and focus on the start recording, stop recording and play recording blocks.
- Assign the students to apply the activity p.99, follow them up and give support if needed in 10 mins.
- Select a student to apply it in front of the students.
- Select another student to apply the activity p.100 in front of the students.
- Direct the students to think about the question on “think” item p.100, then let them discuss the answer in groups then share the information they reached with the class.
- Listen to the answers and correct the mistakes.
- Assign the groups to implement “Do & Observe” p.100, and ask them about their observations.
- Assign the groups to implement the activity p.101, follow them up, give support if needed and evaluate them.

Resources

- [Worksheet \(1\)](#)
- [mBlock - One-Stop Coding Platform for Teaching and Learning](#)
- <https://support.makeblock.com/hc/en-us/sections/360001829013-mBlock-5>

Evaluation Strategies

- Performance based evaluation.
- Observation

Evaluation Tools

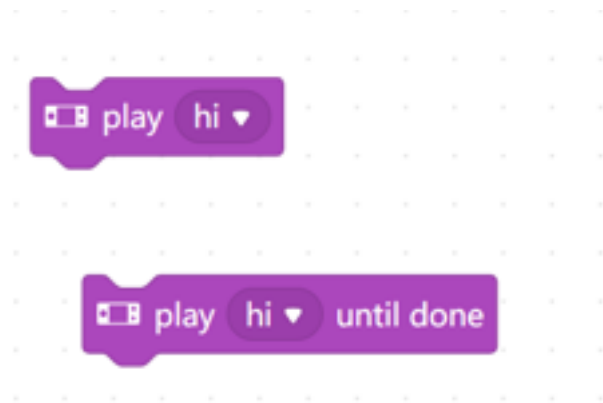
- Rubric.

Enrichment Activity

- Make a code that makes mBot2 play a warning message to stay away if the distance between the robot and the obstacle is less than 20 cm, the robot will turn left or right 90 degree to stay away according to the safety side.
- The message will be recorded.

Remedial Activity

- Let the students try the pre- recorded messages using these blocks:



Lesson 2: Safety Distance

Learning Outcomes

- To learn how ultrasonic sensor works.
- To add the ultrasonic sensor blocks to mBlock.
- To recognize the ultrasonic sensor blocks.
- To use the ultrasonic sensor blocks.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Brainstorming.
2. Collaborative Work.
3. Direct teaching.
4. Practice.

Did the students remember?

- The ultrasonic sensor usage.
- How to add the ultrasonic sensor blocks.
- What is the usage of ultrasonic sensor blocks?

Preparing the portion

- Divide the students into groups.

Warm Up

- Ask the students about animals that use the echo in its life.
- Listen to their answers and discuss them about how the echo works.
- Explain that the ultrasound sensor uses the radio waves to work as an echo.

Instructions

- Open mBlock program.
- Select one student to add the ultrasonic sensor blocks to the program "as they learnt in level 5".
- Display the ultrasonic blocks in front of the students and make a brain storming about the usage of each block.
- Assign the groups to implement the activity p.104 in 10 mins.
- Follow the groups, give support if needed and evaluate them.
- Select a student to implement it in front of the students (you can choose more than one student; each one implements a part of the activity).
- Assign the groups to implement the activity p.105. Give a badge to the first group that implements it correctly, and select one of its members to implement it in front of the students.
- Ask the students about the emotions they used, why did they use it? And if it is preferable more than words or not?
- Listen to some answers and tell them that mBot2 has its own emotion also.
- Direct the students to apply the first activity p.106, follow them up and evaluate them.

Resources

- mBlock - One-Stop Coding Platform for Teaching and Learning
- <https://support.makeblock.com/hc/en-us/sections/360001829013-mBlock-5>

Evaluation Strategies

- Performance based evaluation.
- Questions and answers.
- Observation.

Evaluation Tools

- Rubric.

Enrichment Activity

- Program mBot2 to be moved forward with happy emotion and turn left 90 degrees when it finds an obstacle 20 cm away from it, and its emotion will be gloomy, then it will move forward and return to the happy emotion.

Remedial Activity

- Program mBot2 to be moved forward with happy emotion and turn left 90 degrees when it finds an obstacle 20 cm away from it, and its emotion will be gloomy, then it will move forward and return to the happy emotion.



Computational Thinking

- Where can you use this sensor other than the usage in this lesson?

Lesson 3: Colors Everywhere

Learning Outcomes

Students will be able to:

- To learn what quad RGB sensor is.
- To add the quad RGB sensor.
- To recognize the usage of quad RGB blocks.
- To use quad RGB blocks.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Think- discuss – share.
2. Collaborative Work.
3. Brainstorming.
4. Direct teaching.

Did the students remember?

- The Color sensors.

Preparing the portion

- Divide the students into groups.
- Bring black and white papers.

Warm Up

- Ask the students if anyone knows about the self-driving cars?
- What happens with this car if the traffic light is red?
- Listen to the students and correct the mistakes.

Instructions

- Explain to the students what the RGB colors are. And what is the relationship between the RGB color and the color sensor in mBot2?
- Display the quad RGB sensor in front of the students. (The first activity p.108).
- Direct the groups to add the quad RGB sensor blocks from the library.
- Click on the quad RGB category to show the blocks.
- Ask the students to predict the function of these blocks. (Brainstorming)
- Listen to their predictions and correct the mistakes.
- Connect the robot to the laptop and be sure that the quad RGB sensor was added then turn the robot on and put it on the white paper, the two internal sensors will be blue. Draw the students' attention to the sensor lights.
- Replace the white paper with black one. And draw the students' attention to the sensor lights.
- Make one sensor on the black paper and the other one on the white paper. And ask the students to see what is the difference.

- Explain the table p.110 to the students.
- Direct the groups to implement the activity p. 111, follow them up, give support if needed and evaluate them.
- Explain to the students the status that found in table p.112.
- Direct the groups to implement the activity p.113, follow them up, give support if needed and evaluate them.
- Explain to the students the block p.114.
- Direct the groups to implement the activity p.114, follow them up, give support if needed and evaluate them.

Resources

- [mBlock - One-Stop Coding Platform for Teaching and Learning](#)
- <https://support.makeblock.com/hc/en-us/sections/360001829013-mBlock-5>

Evaluation Strategies

- Performance based evaluation.
- Observation.

Evaluation Tools

- Rubric.

Enrichment Activity

- Design a project that makes the mBot2 detect the traffic lights and response to the light's color.

Remedial Activity

- Program the mBot2 to detect the color and print it on the CyberPi display.

Computational Thinking

- Where can the RGB sensors be used in life?

Lesson 4: Careful Movements

Learning Outcomes

Students will be able to:

- To learn gyroscope and accelerometer sensors.
- To use gyroscope and accelerometer sensors blocks.
- To build a program that use gyroscope and accelerometer sensors blocks.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Brainstorming.
2. Collaborative Work.
3. Direct teaching.
4. Practice.

Teaching strategies and classroom management

1. Brainstorming.
2. Collaborative Work.
3. Direct teaching.

Warm Up

- Ask the students about the car self-driving how it will be safety?
- Listen to their answers and discuss them.

Instructions

- Explain to the students the usage of the gyroscope and accelerometer sensors. Use the figure p. 115 to help you.
- Click on the motion category to show its blocks.
- Ask the students about the block's usage, what do they think?
- Listen to their answers and discuss them.
- Direct the students to implement the activity p.117, follow them up, give support if needed and evaluate them.
- Direct the students to implement the activity p.118, follow them up, give support if needed and evaluate them.
- Assign the groups to implement "Do & Observe" p.118, and ask them about their observations.
- Explain the usage of accelerometer sensor (p.119) and its block.
- Direct the students to implement the first activity p.120, follow them up, give support if needed and evaluate them.
- Direct the students to implement the second activity p.120, follow them up, give support if needed and evaluate them.

Resources

- mBlock - One-Stop Coding Platform for Teaching and Learning
- <https://support.makeblock.com/hc/en-us/sections/360001829013-mBlock-5>

Evaluation Strategies

- Performance based evaluation.
- Observation.
- Questions and answers.

Evaluation Tools

- Rubric.

Enrichment Activity

- Design a project that make the mBot2 use all the sensors that you learnt.

Remedial Activity

- Program the mBot2 to stop if the shake strength is more than 10.

Computational Thinking

- Where can the gyroscope and accelerometer be used in life?

A top-down view of a white spiral-bound notebook with horizontal lines, lying on a white marble surface. The notebook is surrounded by school supplies: a pink ruler, a blue ruler, two pink erasers, two blue erasers, and a strip of colorful sticky notes (orange, yellow, orange, green, blue, pink, yellow, orange) on the right side. The text "Appendices & Worksheets" is centered on the notebook page in a teal font.

Appendices & Worksheets

Unit One 1: Computer and life

Lesson 1: Social Media

Worksheet (1)

Ctrl +Click one of the faces and note the shape that results and write its name and type in the second column

The teacher stores the attached pictures of the worksheet in a folder named 16 on the desktop and checks the links








Lesson2: Computer and internet links

Worksheet (2)

Classify the following behaviors to (correct and incorrect), put the alternative behavior of the incorrect behavior:



Lesson 3: Digital citizen

Word and Meaning

Classify the following behaviors to (correct and incorrect), put the alternative behavior of the incorrect behavior:

Word	a	b	c	d	Meaning
Digital Citizenship					
Rules and Regulations					
Freedom of expression committed to morality					
Digital exploitation					
Digital Access					
E-commerce					
Digital Communication					
Digital Literacy					
Digital Fitness					
Digital laws					
Digital rights and responsibilities					
Digital Health and Safety					
Good digital citizenship					
Suspicious sites					

1. I know the meaning and use the word .
2. I have seen the word but I do not know it.
3. I know the meaning but I don't use the word.
4. I have never seen or heard the word before.

Assessment Strategies: Communication / Questions and Answers / Cause and Effect

Form of cause and effect

Prevention	Result	Cause	Appearance

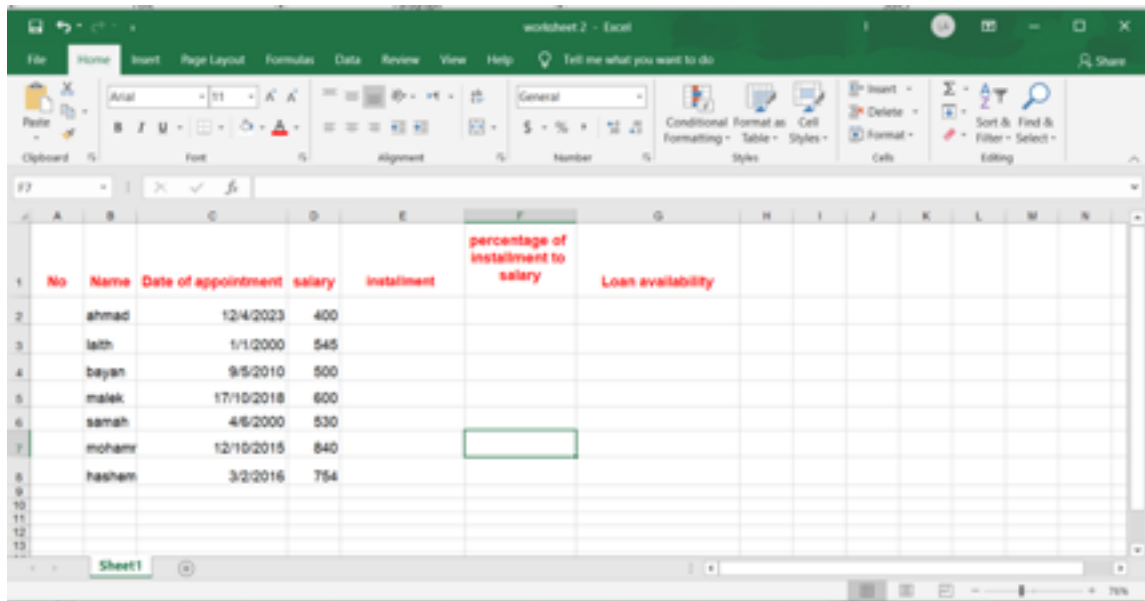
Unit One 2: Microsoft Excel

Lesson 2: Numeral Data

Worksheet (1)

Group.....

Most people try to get loans or buy some expensive needs in installments, but there are some conditions to agree to give them these loans such as: the value of the installment does not exceed 45% of the monthly salary. While doing this activity you are a bank employee

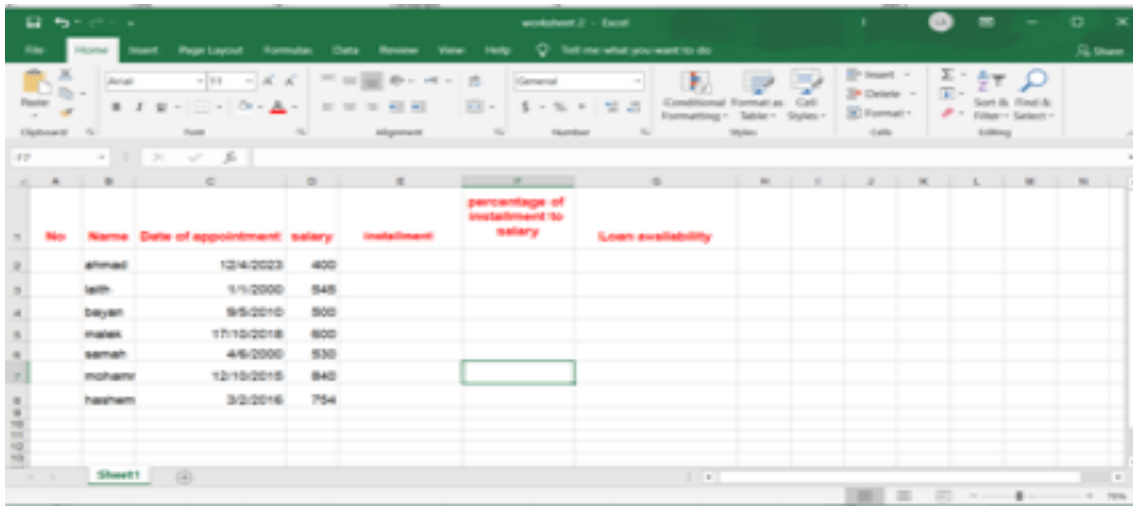


1. Enter the information in the figure below into Excel
2. Fill out the number for employees through auto fill.
3. Make the numeric format of the date of appointment (long date)
4. Calculate the percentage of the installment to salary.
5. Add the percentage symbol and the number of decimal places 2 to column F
6. In the (loan availability) cells, add Yes or No, depending on the condition above.
7. Add (٠.١) to salary. Save work as (loans).
8. What are the data types you use in this sheet?

Lesson 3: Cells format

Worksheet (2)

Open the worksheet (Loans) and do the following:



No	Name	Date of appointment	salary	installment	percentage of installment to salary	Loan availability
1	Ahmad	12/4/2023	400			
2	Iyeh	1/1/2000	545			
3	Bayan	9/5/2010	500			
4	Malek	17/10/2018	600			
5	Samah	4/6/2000	530			
6	Mohamr	12/10/2015	840			
7	Hashem	3/2/2016	754			

1. Add a column after the Name column and enter the job title.
2. Add a row between Bayan and Malek and enter the following data:
Akram - 4/7/2003 - 1200 - manager.
3. Add a new worksheet to the workbook.
4. Delete the worksheet sheet2
5. Make the height of rows 30 and the width of column 20.
6. Make the name of the worksheet containing the data "facilities".
7. Make the color of its tab light purple.
8. Make worksheet sheet 4 immediately after the worksheet facilities.
9. Make copy of the worksheet facilities.
10. Save the changes

Lesson 4: edit data

Worksheet (3)

- **Open the worksheet (Loans) and do the following:**
 1. **Sort the names in ascending order by appointment date.**
 2. **Filter out to show employees whose salary is more than 500.**
 3. **Replace Laith with the name of Saja.**
 4. **Clear Data in row 9.**
 5. **What is the number of employees whose salary is less than 500?**

Lesson 5: Insert Menu

Worksheet (4)

- **Open the worksheet (Loans) and do the following:**
 1. **Use the Internet and look for types of cars that fit the salaries of employees in this sheet.**
 2. **Add a picture of the dream car of each employee in column F.**
 3. **Replace the logical data in (Loan availability) with a laughing face instead of yes and surly face instead of a No.**
 4. **Add a column chart for employee salaries.**
 5. **Save your work.**

Assessment Strategy: Reflection

Assessment Tool: Learning Log

Name:

Class:

I learned in this lesson:

- 1.
- 2.
- 3.
- 4.
- 5.

I did not understand well:

- 1.
- 2.
- 3.

Teacher Notes:

Assessment Strategy: Performance-Based Assessment Tool: Check list

A score from 1-4 is given for each criterion.

Standard	Mastered	Not mastered	Notes
Run the Excel program and remembers the components of the main program screen			
Identify the active cell, the vertical range, the horizontal range.			
Enter and format data			
Write simple arithmetic formulas			
Recognize numeric data formats.			
Insert cell, worksheet, columns, or rows			
Delete worksheets, rows, and columns			
Adjust the size of cells.			
Organizes worksheets by renaming, copying, or transferring worksheets.			
Sort data in ascending or descending order.			
Filter data according to certain conditions			
find and replace data			
Add images, shapes, and charts.			

Arbitration standards for spreadsheet projects

GroupProject subject.....

A score from 1-4 is given for each criterion.

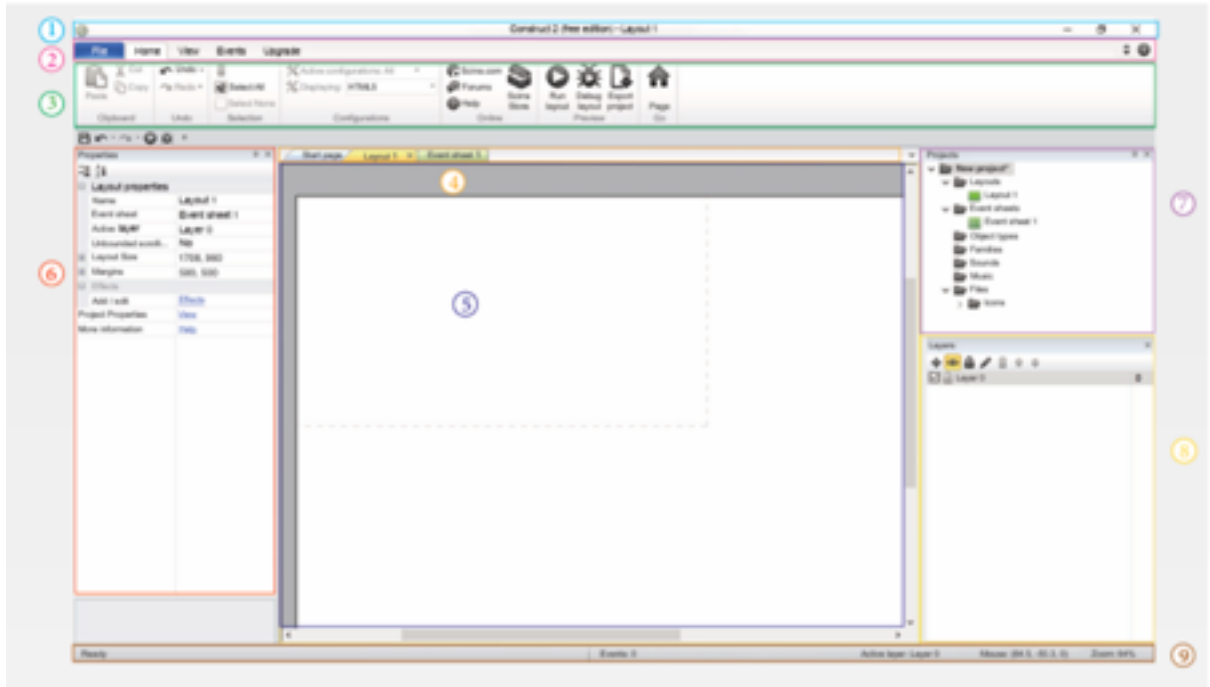
Standard	Mark	Notes
Suitable title for content		
Quiet		
Cooperation		
Distribution of tasks		
respect the time		
Suitable pictures and shapes		
Use numeric format		
Use arithmetic formulas		
Use charts		
Sum		

Unit One 3: Construct 2

Lesson 2: lets start with construct2








Worksheet (1)

- write the main screen components of construct2:



- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

- Match between the command and its icon:

- | | | | |
|-----------------------|---|---|---|
| • Save | ● | ● |  |
| • Save as single file | ● | ● |  |
| • Close project | ● | ● |  |
| • Exit | ● | ● |  |
| • Open | ● | ● |  |
| • Save as project | ● | ● |  |
| • Save | ● | ● |  |

Assessment Strategy: Performance-Based Assessment Tool: Check list

A score from 1-4 is given for each criterion.

Standard	Mastered	Not mastered	Notes
Specify the steps of making a game.			
Open construct 2 program.			
Recognize the components of the main screen.			
Save a project in a specified name.			
Open a saved project.			
Add a sprite to the project.			
Save the project as single file.			
Create a new empty project.			
Add the movement behavior.			
Add event to the sprite.			
Run the game.			
Add background.			
Add action to the sprite.			

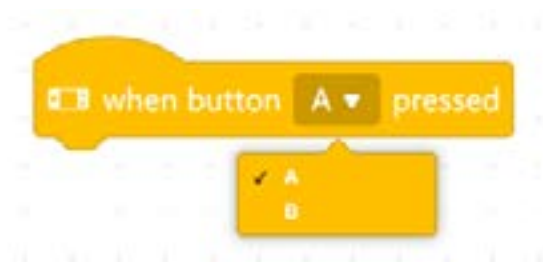
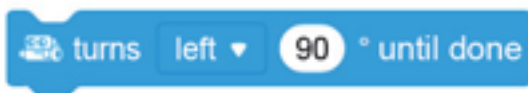
Unit One 4: Robotics

Lesson 1: Listen to mBot2

Worksheet (1)

- Work in groups and answer these questions:
- Question #1: What is the function of each block?
- Hint: you can use the mBlock program.

The Blocks





• **Question #2: List 4 sensors that CyberPi contains:**

1. _____
2. _____
3. _____
4. _____

General Assessment for Unit Four

Assessment tool: Rubric

Assessment strategy: Observation Performance based evaluation

No	Name	Recognize the audio category blocks.	Record a sound using mBot2.	Play the recording sound.	Learn how ultrasonic sensor work.	Add the ultrasonic sensor blocks to mBlock.	Recognize the ultrasonic sensor blocks.	use the ultrasonic sensor blocks.

					Learn what is quad RGB sensor.
					Recognize the usage of quad RGB blocks.
					Use quad RGB blocks.
					Learn gyroscope and accelerometer sensors.
					use gyroscope and accelerometer sensors blocks.
					Build a program that use gyroscope and accelerometer sensors blocks.