Robotics

DIGITAL WORLD

Teacher guide

Book 5

Book 5

First Edition
2023

Windows 10

Microsoft® Office 2019

Content

www.ajyall.com

Computer
and Life

10
Windows

1
Unit

Microsoft®
Office 2019

Unit Learning Outcomes

Upon comple*on of this unit students will be able to:
- Define the concepts of smartphones.
- Compare smartphones and traditional devices.
- Mention the most important operating systems for smartphones.
- Define the robot.
- Enumerate the uses of the robot.
- Demonstrate the importance of using a robot.
- Mention the most important devices that robots are equipped with and their functions.
- Valued the role of technology in facilitating life.
- Define smart devices.
- Give examples of smart devices and mentions their advantages.
- Value the importance of smart devices in facilitating life.
- Enumerate the risks of smart devices on health and social life.

Lesson 1: Smartphones

Learning Outcomes

Students will be able to:
- Define the concepts of smartphones.
- Compare smartphones and traditional devices.
- Mention the most important operating systems for smartphones.

Time needed

One class lesson

Teaching strategies and classroom management

1. Discussion.
2. Cooperalve learning.
3. Aclve learning.
4. Direct Teaching - Lecture

Warm Up

- Store the videos (My First Mobile, Cell Phone Safety For Kids)
- Ask the students: Do you have smartphone? why do use it?

Instructions

- Listen to the student's answers, write the uses on the board.
- Display the video (My First Mobile), direct the students to write
- three ideas.
- Discuss the concept of smartphones the uses of them and the rules to use them.
- Direct students to do aclvity on page 5.
- Explain the types of operalng systems.
- Display the video (Cell Phone Safety For Kids), direct the students to
- draw a picture represents one of the safety rules.

Evaluation Strategies

- Communications

Evaluation Tools

- Check list.

Lesson 2: Robot

Learning Outcomes

Students will be able to:
- Clarify the meaning of robot.
- Enumerate the uses of the robot.
- Mention the devices and units that have been added to the robot and explain how they work.

Time needed

One class lesson

Teaching strategies and classroom management

1. Direct Teaching.
2. Cooperalve learning.
3. Demonstralon/Partners.

Warm Up

- Prepare a set of mullple-choice queslons.
- Install the e- evalualon (Robot) on the devices.

Instructions

- Direct the students to read the lesson silently, then to close their eyes, imagine what the lesson means, and draw a picture.
- Form partner groups so that each group consists of two colleagues.
- Each colleague shows the drawing to his partner to ask a question and after he answers, they take turns.
- Ask the partners to stick their pictures on the wall next to them.
- Discuss the students to conclude that the robot can be different from the human shape according to the task to be performed by it.
- Discuss the uses of robots.
- Display the video (dog robot).
- Direct the students to search using the Internet for re-search areas on page 8.
- Ask the Students to do activities on pages (8,10).
- Evaluate the students through Worksheet 1, Worksheet 2.

Resources

- Work sheet 1.
- Worksheet 2.

Evaluation Strategies

- Communications

Evaluation Tools

- Check list.
- E- assessment

Lesson 3: Digital world

Learning Outcomes

Students will be able to:
- Define smart devices.
- Give examples of smart devices and mention their advantages.
- Value the importance of smart devices in facilitating life.
- Enumerate the risks of smart devices on health and social life.

Time needed

One class lesson

Teaching strategies and classroom management

1. Direct Teaching - Demonstration - Lecture.
2. Active Learning – Aquarium.

Warm Up

- Prepare a set of multiple-choice questions.
- Install e- evaluation (Digital world) on the devices.

Instructions

- Introduction: Direct the students to read the lesson silently, and then explain the aquarium strategy.
- Start discussion about the topics in the lesson using the aquarium strategy, and ask the students to write notes.

- Display the important ideas on the board as a conceptual map.
- Display the attached video (Smart home).
- Direct the students to solve the activities on page 13.
- Distribute worksheet 3, and follow up on their work.
- Evaluate the students using the Plickers app.

Resources

- Work sheet 3.

Evaluation Strategies

- Communications – Questions and Answers.

Evaluation Tools

- Plickers app.
- E- assessment

Microsoft PowerPoint
2019

10
Windows

2
Unit

Microsoft®
Office 2019

Unit Learning Outcomes

Upon comple*on of this unit students will be able to:
- Insert table into the slide.
- Format the table cells in an appropriate way.
- Add additional effects to the table cells.
- Coordinate the borders of graphic shape.
- Apply transition animations between slides.
- Apply custom animations to specific items.
- Add hyperlinks.
- Criticize ready-made presentations and expresses his opinion.

Lesson 1: Basic skills

Learning Outcomes

Students will be able to:
- Create a new presentation.
- Add a slide of type (title and content).
- Add a picture to the slide.
- Add a hierarchical layout.
- Organize information into a table.

Time needed

One class lesson

Teaching strategies and classroom management

1. Group Cooperative Learning.
2. Direct Teaching - Worksheets – Lecture.
3. Traffic Lights / Rotation.

Warm Up

- Prints worksheet 1 with the number of groups.
- Installs the e- exam (Basic Skills) on the devices.

Instructions

- Distribute the students into groups using classdojo.
- Distribute the worksheet and direct them to solve it through groups.
- Each group gives their worksheet to the adjacent group in the form of a ring, to straighten the answers.
- Repeat until the worksheet returns to the original group, then show the right answers.
- Ask the groups to solve the activity on page 15, follow up their work and support when needed.
- Evaluate students by the e-exam (Basic Skills).

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.
- E-assessment.

Lesson 2: Format Tables

Learning Outcomes

Students will be able to:
- Coordinate table cell boundaries.
- Fill cells with a pattern or picture.
- Add some effects to the cells.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Group work - colleague training.
2. Direct teaching – lecture.

Warm Up

- save the e- exam (Tables Format) on the devices.
- Pre-session: choose a student to remind classmates how to insert a table in the slide.

Instructions

- Use datashow (projector) to explain how to format the table borders.
- Instructs the students to implement (Do & Observe) on page 17.
- Choose a student from each group, show them how to fill the cells and how to add effects.

- Direct the students to train their classmates in the group what they learnt, follow up their work and support them.
- Direct the students to do the activities on pages (18,19).
- Evaluate the students by the e-exam (Table Format).

Resources

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.
- E-assessment.

Lesson 3: Format Shapes

Learning Outcomes

Students will be able to:
- Use the Fill tool to fill shapes.
- Format the shape outline.
- Coordinate graphic shapes using ready-made patterns.
- Create distinct slides using graphic shapes.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Learning in groups - colleague training.
2. Direct teaching – lecture.
3. The Navigator reporter.

Warm Up

- Install the e- exam (Shapes format) on the devices.
- Ask a student from each group to insert a shape on the slide.

Instructions

- Explain to the students that they should use their previous skills in the Microsoft Word 2019 program and do the following:
  - fill the figure with an appropriate color.
  - Format the outline borders.
  - add shape effects.
  - add new shape and use ready-formatting patterns.
- Tell the student who carries out the activity, that he has to teach his colleagues.
- In each group, a student must be acting as a navigator reporter, so that he moves to other groups to take experience and information from them and transfer it to his group.

- Direct the students to apply activities on pages (20, 22, 23).
- Evaluate the students using the e-exam (Shapes format).

Resources

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.
- E-assessment.

Lesson 4: Transitions & Animations

Learning Outcomes

Students will be able to:
- Specify a transition between slides.
- Add a custom animation to a specific element of the slide.
- Show the animation pane.
- Add animation effects to a specific item.
- Control the timing of movement.

Time needed

Two class lessons

Teaching strategies and classroom management

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

Warm Up

- Ask the groups to check the home screen of Microsoft PowerPoint and determine the names of the different menus between it and other office programs.
- Ask the students about the transitions tab, if they saw it before in other programs.

Instructions

- Open a previous presentation to set transition animations between slides.
- Explain the steps for assigning transition animations to slides.
- Direct the groups to work on the activities on pages 24,25.
- Ask the students to solve (Do & Observe) & (shine) on page 26.
- Explain the steps for assigning custom animation for a specific item.
- Direct the groups to work on the activities on pages 28, 29.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.

Lesson 5: Animation Pane

Learning Outcomes

Students will be able to:
- Show the animation Pane.
- Change the settings of the animation pane.

Time needed

One class lessons

Teaching strategies and classroom management

1. ClassDojo.
2. Self-learning.
3. Direct teaching.
4. Collaborative Learning.

Warm Up

- Ask the students to explore how to show the animation pane, and explore its contents.

- Use classdojo to choose one of the students to explain how to use the animation pane.
- Use the data show to explain the steps of changing the settings of: play settings, effects options, timing.
- Direct the students to apply activities on pages 32,33.
- Follow up the students work and support when needed.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.

Lesson 6: Submit Your Opinion

Learning Outcomes

Students will be able to:
- Evaluate the presentation with a critical eye.
- Recognize the right criteria for creating a presentation that attracts the viewer.
- Adhere to the right standards for creating a presentation.

Time needed

One class lessons

Teaching strategies and classroom management

1. Critical thinking.
2. Cooperative learning
3. Think - pair – share.

Warm Up

- Start a discussion about the criteria of the success presentation, and if it is the same for all presentations or all peoples.
- Explain the strategy (Think - Pair – Share).

Instructions

- Show the first picture on page 34, and ask the students to think about it : is it attractive or distracting? is it clear? How can we make it better?
- After the student thinks alone and write notes, after that he discusses his colleague in the same group then share their ideas with the class.
- Repeat the previous steps for the remaining slides.
- Present the rules to be followed for a distinguished presentation, which are attached in the appendices, and inform the students that the evaluation of the projects will be based on commitment to them.

Evaluation Strategies

- Communication.
- Self-Revision - Self-Evaluation.

Evaluation Tools

- learning log description.

Lesson 7: Final Project

Learning Outcomes

Students will be able to:
- Use all the skills learned in this unit to produce a meaningful presentation.
- Develop communication and collaboration skills with 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 page 37, or can choose other purposeful topics.

Instructions

- Ask the groups about the topics they will work on, and the reason of choosing them.
- Write on the board criteria of evaluation, such as:
  - The topic should be purposeful.
  - The Title is suitable for the topic.
  - Color consistency.
  - Clarity of font.
  - The sequence and logic of ideas.
  - Simplicity in expressing ideas.
  - creativity.
  - Distribution of tasks and collaboration among group members.
- Follow up students work, evaluate the projects.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.

Microsoft
Excel
2019

10
Windows

3
Unit

Microsoft®
Office 2019

Unit Learning Outcomes

Upon comple*on of this unit students will be able to:
- Open the spreadsheet program and recognize the main program screen.
- Specify the active cell and its contents as well as the vertical range and horizontal range.
- Create a new workbook or open a previously stored workbook.
- Save and close the workbook.
- Enter data into an Excel workbook and modify it.
- Copy, transfer and fill data automatically.
- Format cells.
- Add rows and columns and deletes rows and columns.
- Adjust the row height and column width.
- Deal with worksheets in terms of rename, delete, add and rearrange.
- Change the color of the worksheet tab.
- Write arithmetic formulas in the spreadsheet program.
- Aware of the importance of using spreadsheet software in organizing information.

Lesson 1: Let's Start With Excel

Learning Outcomes

Students will be able to:
- Run the spreadsheet program.
- Recognize the main program screen.
- Specify the active cell and its contents as well as the vertical range and horizontal range.

Time needed

One class lesson

Teaching strategies and classroom management

1. Group cooperative learning.
2. Direct teaching - worksheets – lecture.
3. Traffic lights.
4. Exhibition tour.

Warm Up

- Install pre-assessment (Let's start with Microsoft Excel / pre-assessment) on devices.
- Print (Worksheet 1) with the number of groups.

Instructions

- Direct the students to apply the (pre- assessment) to identify their previous experiences, evaluate them in advance and connect them to Microsoft office programs.
- Distribute the students into groups and remind them to use traffic lights if needed.
- Explain the main parts of Excel and explain what is meant by cell and range.
- Distribute worksheet1 and ask the students to solve it through groups and then hang it on the board.
- Ask the students to start a tour to see the worksheets of the other groups, and ask them correct the mistakes.
- Present the correct solution of the worksheets and instruct the groups to correct their mistakes.
- Direct the groups to solve the activities on page 42,43.
- Evaluate the students through the e-exam (Let's start with Microsoft).

Resources

- Worksheet (1).

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.
- E-assessment.

Lesson 2: File Menu

Learning Outcomes

Students will be able to:
- Create a new workbook.
- Open a pre-stored workbook.
- Save the workbook.
- Close the workbook.

Time needed

One class lesson

Teaching strategies and classroom management

1. Learning through activity - games - mental warm-up exercises.
2. Direct teaching – lecture.

Warm Up

- Pre-preparation for class: prepares a small ball to use to select the student in mental warm-up exercises.
- Begin the class with mental warm-up exercises through short questions, you can choose a student to answer by throwing a small ball at him, and the student will answer the question.

Example of warm-up questions:

- The command used to close an open file is.................
- The command used to save a file is ....
- The command used to save a file but with another name ....
- If you want to work on a closed file, you must choose ……………………. from the list ....

Instructions

- Choose a student to apply each of the commands (New, open, save, save as, close) using the datashow (projector).
- Direct the students to collaborate in Appling the commands.
- Ask the students to solve the activity the activity on page 48.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Verbal grading scale.

Lesson 3: Handling Data

Learning Outcomes

Students will be able to:
- Enter data into the cells.
- Know the most important keys that help to move between cells.
- Modify the previously entered data.
- Copy and cut data.
- Fill data Automatically.
- Format the cells.

Time needed

Three class lesson

Teaching strategies and classroom management

- Group work.
- Learning through Activity.
- Direct Teaching – Lecture.
- Exploration.

Warm Up

- Install E- exam (dealing with data) on the devices.
- Asks the groups to open Excel and try to use the keys: Enter, Tab, arrows to explore their functions, and ask them to write their notes.

Instructions

- Ask the students about the keys and their functions.
- Direct the groups to do the activity on page 49.
- Ask the students to do (Do & Observe) individually.
- Ask the students to explore how to select a cell, row, column, and group of rows or columns.
- Select a student to apply the steps using data show.
- Direct the groups to do the activity on page 53.
- Ask the students to do (Do & Observe) individually.
- Use the data show to explain the steps of editing data (edit, copy, cut, autofill).
- Ask each group to select one of them and apply the activity relating to it.
- Ask the groups to choose a student to explain their work to other groups.
- Follow up the students work and support if needed.
- Select a student from each group to display their work using datashow.
- Evaluate the students using the E- exam (dealing with data).

Resources

- E- exam.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Checklist.
- E-assessment.

Lesson 4: Tables

Learning Outcomes

Students will be able to:
- Add borders to data in the table.
- Fill the cells with a specific color.
- Add rows and columns.
- Delete rows and columns.
- Adjust the row height and column width.

Time needed

Two class lessons

Teaching strategies and classroom management

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

Warm Up

- Use classdojo to distribute students into groups.
- Save the E-exam (**Tables**) on devices.
- print the worksheet 3 with the number of groups.
- Review the information about tables that they have learned in the word program.

Instructions

- Use the data show to explain the skills of editing borders and background of the table.
- Direct the students to apply the activities on pages 62,63.
- Choose a student from each group, show them how to add or delete rows and columns, and how to adjust the row height and the column width.
- Ask the students to train their classmates these skills.
- Direct the students to do the activity on page 67.
- Distribute Worksheet 2.
- Follow up the student's work and support them.
- Evaluate the students using the E-exam (**Tables**).

Resources

- Worksheet 2.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Verbal grading scale.

Lesson 5: Worksheets

Learning Outcomes

Students will be able to:
- Rename the worksheets.
- Delete a selected worksheet.
- Add a worksheet.
- Rearrange worksheets.
- Change the color of the worksheet tab.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Reciprocal teaching.
2. Direct teaching – lecture.
3. Collaborative Learning.

Warm Up

- Chooses a student to remind other students of the worksheet bar and the number of worksheets it contains.
- Ask the leader of each group to come and explain to them how to change the name of the worksheet, how to add and delete worksheets.

- Direct the leaders to return to their groups, explain the steps and apply them in front of their colleagues.
- Repeat the same steps for the other skills, follow up the work and support if needed.
- Direct the students to apply the activity on page 70.
- Direct the students to do (Do & Observe) on page 70.
- Follow up the student's work and write notes.

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Verbal grading scale.

Lesson 6: Formulas

Learning Outcomes

Students will be able to:
- Recognize the symbols of basic arithmetic operations in computer.
- Recognize arithmetic formulas in the Excel program.
- Write arithmetic formulas in the Excel program.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Direct teaching – lecture.
2. Collaborative Learning.

Warm Up

- print the worksheet 3 with the number of groups.
- Explain the importance of the Excel program in Organizing data, and performing calculations.

Instructions

- Explain the difference between the symbols of arithmetic operations in mathematics and its symbols in computer.
- Use data show to explain how to write an equation in the formula bar, and explain the examples in the lesson.
- Direct the students to apply the activity on page 75., follow up the students work.
- Distribute Worksheet 3 to the groups and follow them up.

Resources

- Worksheet 3.

Evaluation Strategies

- Performance based evaluation.
- Self – assessment.

Evaluation Tools

- Verbal grading scale.
- learning description log.

Lesson 7: 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
- 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 page 76, 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

- Checklist

Robotics

Unit 4

Unit Learning Outcomes

- Recognize mBot2.
- Recognize two types of programming (text-based codeing and block-based programming).
- Recognize mBot2 components.
- Build mBot2.
- Download mBlock program on their devices.
- Recognize the main parts of mBlock screen.
- Connect mBot2 to the computer.
- Add blocks categories from the library.
- Identify CyberPi.
- List the sensors that CyberPi contains.
- Program mBot2 sensors to do specific tasks.

Lesson 1: My first Robot

Learning Outcomes

- Recognize mBot2.
- Recognize two types of programming (text-based codeing and block-based programming).
- Recognize mBot2 components.
- Build mBot2.

Time needed

2 sessions.

Teaching strategies and classroom management

- Think- discuss – share.
- Collaborative Work.
- Direct teaching – work on student book.
- Brain storming.

Did the students remember?

- What is robot?
- what are the uses of Robots?
- What devices are provided to the Robots to do functions?
- How they can make a program using Scratch program?

Preparing the portion

- Print worksheet (1) according to the number of groups you want to compose.

Warm Up

- Display Robots video in front of the students.
- Give the students 5 mins to think about what make the robots move.
- Give the groups 10 mins discuss what they think about.
- Give the class 5 mins to share what they reach about the video correct the mistakes.
- Distribute the worksheet to the groups to answer question number (1).
- Answer the question (1) on the worksheet in front of the students.

Instructions

- Show mBot2 in front of the students and ask them what they think that this robot can do? And what sensors it has?
- Listen to the students answers.
- Tell the students what is mBot2 and why it was built.
- Explain the components of mBot2 in front of the students and the function of each component.
- Let the students answer the activity on page 79 then correct the book to evaluate the students.
- Let the groups answer question number 2 on the worksheet.
- Explain that multiple robots can connect to each other and explain how?
- Display mBot2 installation video in front of the students.
- Let them build the robot if you have many robots.
- Ask the student randomly about mBot2 and its component and evaluate them.

Resources

- Worksheet (1).
- Robots video.
- mBot2 installation.

Evaluation Strategies

- Performance based evaluation.
- Questions and answers.
- Work on paper.

Evaluation Tools

- Rubric

- Let these student search on the mBot2 robots.

- Let these students make a plate about mBot2 and it's component.

Lesson 2: mBlock Program

Learning Outcomes

- Download mBlock program on their devices.
- Recognize the main parts of mBlock screen.
- Connect mBot2 to the computer.
- Add blocks categories from the library.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Direct teaching.
2. Collaborative Work.

Did the students remember?

- How to build stack from blocks on Scratch program?

Preparing the portion

- Print Worksheet (2) according to the number of students or you can display it on the datashow.

Warm Up

- Ask the students if they remember Scratch program.
- Let them open the program.
- Distribute worksheet 2 on the students and assign them to implement the required program.
- Select a student randomly to apply it in front of the class.

Instructions

- Explain to the students the advantage of the mBlock program and compare it with Scratch program.
- Download mBolock on your devices on front of the students.
- Let them download it on their devices.
- Open mBlock in front of the students.
- Let the students open it on their devices.
- Assign them to apply "Do & Observe" on p. 82 and ask them about their observations.
- Explain the main parts of the mBlock screen to the students and the importance of each component.
- Assign them to apply the activity on p.84.
- Explain to the students how to connect mBot2 to the computer.
- Assign the students to implement the activity on p. 87. Follow them up , give support to the students if needed and evaluate them.
- Tell them to download mBlock on their home devices.

Resources

- Worksheet 2.

Evaluation Strategies

- Performance based evaluation.
- Questions and answers.

Evaluation Tools

- Rubric

Enrichment Activity

- Assign these students to select a sprite on mBlock program and make it move on a circle.

Remedial Activity

- Write the differences between mBlock program and Scratch program.

Lesson 3: Let's Move!

Learning Outcomes

- Let the robot moves forward, backward, right and left.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Brainstorming.
2. Practice.
3. Collaborative Work.
4. Class do jo.

Did the students remember?

- How to make the sprite moves in Scratch program?

Warm Up

- Select a student randomly using Class do jo
- Ask him/her to stand up on back of the classroom.
- Select another student.
- Ask him/her to give the first student orders to reach a specific point on the classroom for example the door or the window or the board.
- Let third student write the orders on the board.

Instructions

- Display the three blocks on p.88 in front of the students and give them 5 mins to find the difference between these blocks.
- Give the groups 5mins to discuss about the differences.
- Each group must choose one member to share the information they find in front of the classroom.
- Correct any mistakes.
- Explain the difference between them.
- Explain the turns blocks.
- Assign the groups to implement the activity on p.89, follow them up, give support if needed then evaluate them.
- Select a student randomly using class do jo to implement it in front of the class.
- Give the groups 5 mins to try "Do & Observe" and ask them about their observations.
- Assign the groups to implement the activity on p. 90, follow them up and give support if needed.
- Select a student randomly using class do jo to implement it in front of the class.
- Assign the groups to implement the activity on p. 91, follow them up and give support if needed.
- Select a student randomly using class do jo to implement it in front of the class.

Resources

- mBlock - One-Stop Coding Platform for Teaching and Learning

Evaluation Strategies

- Performance based evaluation.
- Observation

Evaluation Tools

- Rubric

Enrichment Activity

- Give these students a chance to draw a way for mBot2 and then implement it.

Remedial Activity

- Let them try to make mBot2 move on a square.

Lesson 4: mBot2 Sensors

Learning Outcomes

- Identify CyberPi.
- List the sensors that CyberPi contains.
- Program mBot2 sensors to do specific tasks.

Time needed

Two class lessons

Teaching strategies and classroom management

1. Think- discuss – share.
2. Collaborative Work.

Did the students remember?

- What is the meaning of sensors?
- How sensors are work?
- List mBot2 sensors.

Preparing the portion

- mBot2 must be with you on the classroom.

Warm Up

- ask the students about their knowledge on the sensors.
- Listen to their answers and correct the mistakes.

Instructions

- Display the three blocks on p.88 in front of the students and give them 5 mins to find the difference between these blocks.
- Give the groups 5mins to discuss about the differences.
- Each group must choose one member to share the information they find in front of the classroom.
- Correct any mistakes.
- Explain the difference between them.

- Explain the turns blocks.
- Assign the groups to implement the activity on p.89, follow them up, give support if needed then evaluate them.
- Select a student randomly using class do jo to implement it in front of the class.
- Give the groups 5 mins to try "Do & Observe" and ask them about their observations.
- Assign the groups to implement the activity on p. 90, follow them up and give support if needed.
- Select a student randomly using class do jo to implement it in front of the class.
- Assign the groups to implement the activity on p. 91, follow them up and give support if needed.
- Select a student randomly using class do jo to implement it in front of the class.

Resources

- mBlock - One-Stop Coding Platform for Teaching and Learning

Evaluation Strategies

- Performance based evaluation.

Evaluation Tools

- Rubric

Appendices & Worksheets

Unit One: Computer and Life

Worksheet 1

- **Student Name:**
- Put the appropriate concept in the space below:
- A ……………….. is a machine that can do (dangerous, hard and very precise) tasks. It was programmed based on the …………………it will perform. It is capable of analyzing and making conclusions.
- Scientists have provided robots with …………………….. and units that enable them to perform the functions they were produced for. They are provided with ……………………………………………It is a chain similar to bones formation. And …………….. which work as muscles. Some robots have two eyes containing ……………………. when they are exposed to light, they turn it into electrical pulses.
- Some of them have a …………………………………………… device that picks up the sounds that a human produces and turns them into electric pulses that that robot understands and analyzes.

Worksheet 2

- Rearrange the letters to make words and sentences. And match the sentence to the appropriate image:

t o o r b

_____

u r g c i l a S   s a i o n t o p r a e

_____

n i e s M   t D e e c o r t

_____

a r s C   P d u r c o o n i t

_____

Worksheet 3

look at the following digital devices pictures.

Write one advantage for each beside the 🟢 and one disadvantage beside the 🔴 :

	🟢 .... 🔴 ....
	🟢 .... 🔴 ....
	🟢 .... 🔴 ....
	🟢 .... 🔴 ....
	🟢 .... 🔴 ....

- Write the name of each operating system in the following:

Computer And Life

Assessment Strategy: Performance-Based
Assessment tool: Check list
Name: ....   **Date:** ....

No.	Standard	mastered	not mastered	notes
1.	Explains what a robot is.			
2.	Lists the robot usages.			
3.	Lists the devices and modules that have been added to the robot.			
4.	Explains how function of robor components.			
5.	Explains what smart devices are.			
6.	Mention the most important features of smart devices.			
7.	Lists the operating systems of smartphones.			
8.	Gives examples of smart devices and mentions their features.			
9.	mentions the most important risks of smart devices on health and social life.			

Unit Two: Microsoft Office PowerPoint

Worksheet 1

- What is the function of each shown tool:

	Video		Audio

- Depending of the picture answer the following questions:

1. What operations can the user do according to the picture? _____

_____

_____
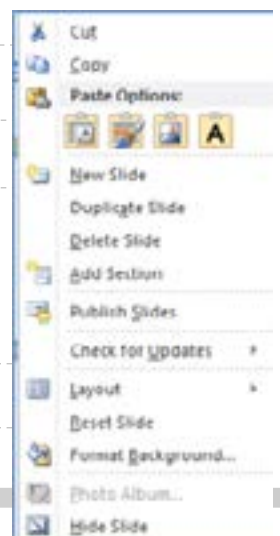
2. What did the user do to view this menu?

_____

_____

56

Worksheet 2

• Compare the two shapes in the first two columns, then identify the effects that were applied to the first one by placing the √ sign next to the effect in the third column:

• Fill the shape. • Outer borders. • Shapes effects.		
• Fill the shape. • Outer borders. • Shapes effects.		
• Fill the shape. • Outer borders. • Shapes effects.		

Arbitration standards for PowerPoint presentation

1. Number of words in each line does not exceed seven, number of lines does not exceeds six.
2. The content is appropriate with the presentation time.
3. The consistency of contents.
4. The consistency of colors.
5. The information Displayed from easy to difficult.
6. Suitable pictures and charts.
7. The colors are suitable to each other.
8. The same design for all slides.
9. A verity of transaction and animations.
10. The clarity of the fonts.
11. The presentation language is clear and easy to understand.
12. Each slide has only one idea.
13. The presentation contains multimedia.
14. Hyperlinks are used in the appropriate way.
15. The content is free from spelling and linguistic errors.

Lesson 7: Give Your Opinion

Assessment Strategy: Self-Revision
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 evaluation, Observation.
Assessment tool: : check list.

mark	Use the help instructions	Criticizes ready-made presentations and expresses his opinion.	Insert hyperlinks	Add custom animation and some effects.	Add custom animation to some

Format the shapes border and fill them.	Add the effects to the cells.	Fill the cells in appropriate way	Design the cells borders.	Name	No.

Unit Three: Microsoft Office Excel

Lesson 1: Let's Start with Microsoft Excel

Worksheet 1

- Depending in the following picture answer the following questions:
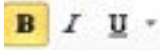
1. What is the book name?
2. How many worksheets are there?
3. The active cell is .... and its content is
   ....
4. Fill G10 with green color.
5. Fill the Range B3:B12 with blue color and the range D7: J7 with yellow color.
6. Write the difference between the main window in Microsoft Word and the main window in Microsoft Excel.
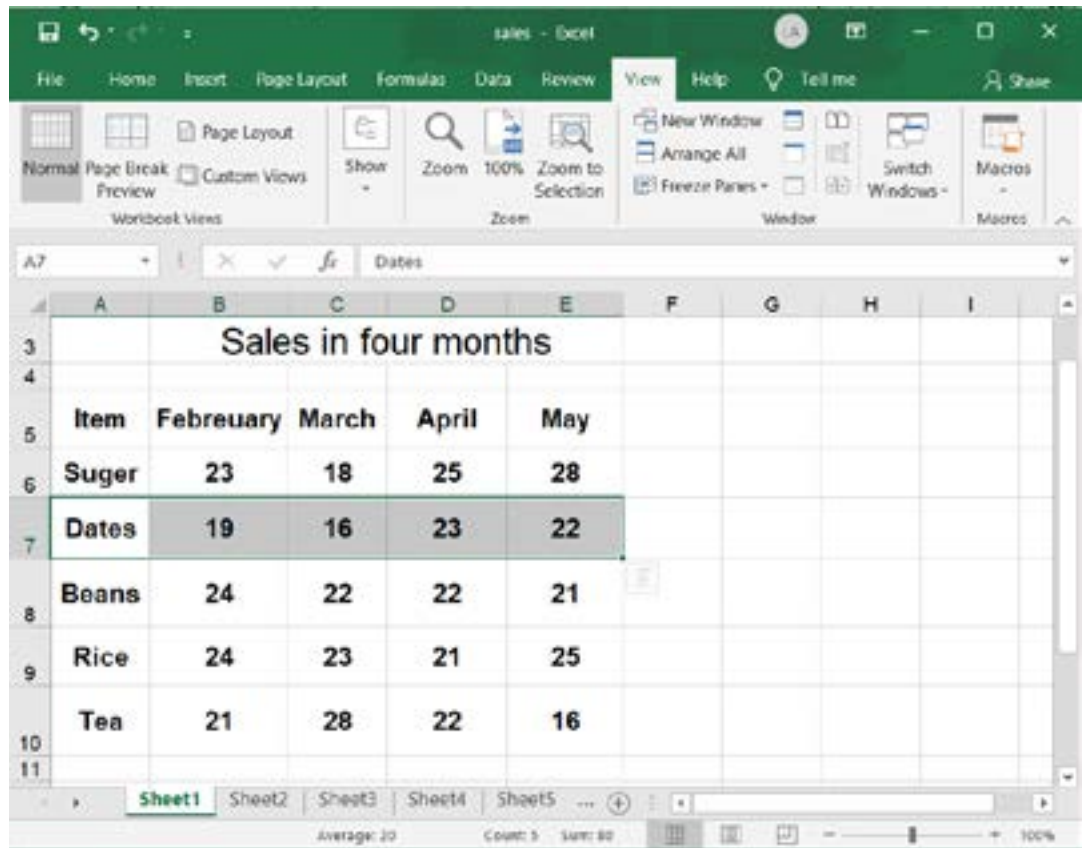
- **Cards specially for Dealing with data handling lesson**

	Simplified Arabic ▾	▌¶ ▾
A ▾		B I U ▾

Lesson 4: Tables

Worksheet 2

- The teacher asks the students to enter the following data into the computer. Then do the following:

1. Add an external border with a green color and a yellow internal border.
2. Make the borders patterns dotted.
3. Fill row 5 with light grey color and the other rows with light green.
4. Add two rows after the row that contains Dates.
5. Add a column after the column that contains Item.
6. Save the file.

Worksheet 3

1. Open the (**Sales**) workbook.
2. Add formulas to calculate the sales of each item in the four months.

Lesson 6: Formulas

Assessment Strategy: self - assessment
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:
....
....
....

Arbitration standards for spreadsheet projects

- Group ....
- Project Name: ....

Assessment Strategy: Performance-Based
Assessment tool: :Rating scale

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

Standard	Mark	Notes
Suitable title for content		
Cooperation		
Distribution of tasks		
Management of time		
Suitable pictures		
Suitable Colors		
Clarity of information		
The usage of right arithmetic formulas		
Sum		

Unit Three: Microsoft Excel 2019

	First level The student is expected to:	Second Level The student is expected to:	Third level The student is expected to:
Standard	Show very little knowledge And the skills	Show some of knowledge and skills required.	Show most of knowledge And skills required.
Run Excel program, recognize the main window components. Determine the active cell and Its content. Also determine the vertical range and the horizontal range Create a new workbook, open a saved workbook. Save the book. Close the book.	Run the spreadsheet program, recognize the main window components.	Run the spreadsheet program, recognize the main window components. Open a workbook. And close it. Create a new workbook, open a saved workbook. Save it.	Run the spreadsheet program, recognize the main window components. Determine the active cell and Its content. Create a new workbook, open a saved workbook. Save the workbook. Close the workbook.
Specify the function of the navigation keys while using Excel. Enter data into an Excel workbook. Modify the pre-entered data. Copy and transmit data. automatically fill the data. and coordinate cells.	Enter data into an Excel workbook. Modify the pre-entered data.	Specify the function of the navigation keys while using Excel. Enter data into an Excel workbook. Modify the pre-entered data.	Specify the function of the navigation keys while using Excel. Enter data into an Excel workbook. Modify the pre-entered data. Copy and transmit data.

Add borders to the cell in the table. Fill cells with a specific color. Add rows and columns. Delete rows and columns, adjust the row height and column width.	Add borders to the cell in the table.	Add borders to the cell in the table. Fill cells with a specific color.	Add borders to the cell in the table. Fill cells with a specific color. Add rows and columns. delete rows and columns
Rename worksheets and delete a selected worksheet. Add another, and then rearrange the worksheets. Change the color of the worksheet tab.	Delete a selected worksheet. Add another.	Rename worksheets and delete a selected worksheet. Add another.	Rename worksheets and delete a selected worksheet. Add another, and then rearranges the worksheets.
Recognize symbols of basic calculations using a computer. Recognize arithmetic formulas in the spreadsheet program. And write mathematical formulas in the spreadsheet program.	Recognize symbols of basic calculations.	Recognizes symbols of basic calculations using a computer.	Recognize symbols of basic calculations using a computer. Recognize arithmetic formulas in the spreadsheet program.

Unit Four: Computer and Life

Worksheet 1

1. What are the parts or systems that do this function for the robot:

   1. Was made to suit the robot's function, it like the kinetic chain in the humans ……………………………
   2. Like the eyes, containing cameras ………………………………………
   3. Some robots have a sound recording device that captures sounds and converts them into electrical flashes that robot understands and analyzes, then performs the required function ………………………………………
   4. The robot is equipped with sensors that receive the texture of objects and convert them into electrical impulses stored inside it …………………………………….
   5. It considered as the brain of the robot

   ==

2. Which devices or systems in question number 1 that mBot2 contains and what are they called.

Lesson 2: mBolock Program

Worksheet 2

1. Open Scratch program.

2. Delete Scratch cat.

3. Add a bear and bear- walking sprites.

4. Add a tree.

5. Make a code that used to make the bear- walking.

6. Use the bear sprite (costume b) if it the distance between the bear and the tree less than 20 CMS.

7. Apply the program.

General Assessment for Unit Four

Assessment Strategy: : Observation Performance based evaluation
Assessment tool: Rubric
Name: .... **Date:** ....

Standard	Excellent	Very good	good	notes
Recognize mBot2.				
Recognize two types of programming (text-based codeing and block-based programming).				
Recognize mBot2 components.				
Build mBot2.				
Download mBlock program on their devices.				
Recognize the main parts of mBlock screen.				
Connect mBot2 to the computer.				
Add blocks categories from the library.				
Identify CyberPi.				
List the sensors that CyberPi contains.				
Program mBot2 sensors to do specific tasks.				