Grade	Subject	Lesson number	Week number
3	DT	1	1
Unit number	Date	Time	Page number
1	2nd September	45 minutes	10-15

Equipment required:	Learning objectives:
textbook pen/pencil	1.1 Define robot and robotics.
Keywords	robots, robotics

Starter activity

Time ~ 5 minutes	Introduce E-safety guidelines as per the introduction in the book. You may choose to do this as an activity (crossword, word search, etc.).

Main

Time ~ 35 minutes	Introduce the term robots and robotics to students. Encourage students to share their thoughts on robots. Go through the definition of robotics and briefly explain how it has improved our lives. Complete Activities 1 and 2. Activity 1: Students complete the word finder puzzle. Robots (7,1, Left); Robotics (9,2, Left); Input (5,5, Down-Right); Output (9,8, Up); Drone (3,3, Down); Program (1,7, Up); Machine (2,3, Down) Activity 2: Get students to work in pairs or groups. They should list the words they know in their textbook and pick one word to explain to the rest of the class. It is important that students share any knowledge they have on the subject. They can supplement their explanation with drawings or a mini presentation, if they so choose. Answers may vary After this, go to the **Keywords** section and define each word with visual aids and/or demonstrations.

Plenary

Time ~ 5 minutes	Summarise the lesson and explain the learning outcomes so that students are familiar with their learning targets for this unit.
Assessment focus	Understand the terms robot and robotics.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	2	1
Unit number	Date	Time	Page number
1	2nd September	45 minutes	16-20

Equipment required:	Learning objectives:
textbook pencil	1.1 Define robot and robotics.
Keywords	android, drone

Starter activity

Time ~ 10 minutes	Recap the last lesson. Quiz students about vocabulary. You may choose to do this as an activity (crossword, word search, etc.)

Main

Time ~ 30 minutes	Start off with the proper definition of a robot. Use examples to illustrate how robots are useful to us. Encourage discussion in the classroom. Ask questions like 'do robots look like us?' to introduce new words, such as android and drone. Complete Activities 3 and 4. **Activity 3:** Students might already be familiar with drone cameras. Encourage them to think of more possibilities by asking questions, such as 'Do you think drones can help with delivery services?' and 'Do you think they can help with transportation?' flying taxi, food delivery, aerial camera **Activity 4:** This activity introduces some robots that students may be familiar with, but did not realise were robots. clockwise: parking barrier, WALL-E, speeding camera

Plenary

Time ~ 5 minutes	Summarise the lesson. Ensure student work is completed and any ambiguities are resolved. Assign any incomplete tasks as homework.
Assessment focus	Understand and define the terms 'robot' and 'robotics'.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	3	2
Unit number	Date	Time	Page number
1	9th September	45 minutes	21-25

Equipment required: textbook pencil	Learning objectives: 1.2 Understand how a robot thinks. 1.3 Understand the main parts of a robot.
Keywords	input, brain, output, sensors

Starter activity

Time ~ 5 minutes	Recap the last lesson. Quiz students about vocabulary. You may choose to do this an activity (crossword, word search, etc.).

Main

Time ~ 30 minutes	In this lesson, students are introduced to how robots think. Students should already be familiar with some of the terms from lesson 1; however, you should quickly reintroduce these terms to ensure the students are up to speed. Introduce the main parts of a robot. Define input, output and the concept of sensors. Explain the function of the brain as something that creates an output based on the input it receives. Relate it to the students by comparing these terms with the human body. Complete Activity 5 and 6. **Activity 5** touch – skin, smell – nose, taste – tongue, hearing – ears, sight – eyes **Activity 6** output Now that the students are familiar with the workings of a robot, explain how to differentiate a robot from a simple machine. Use Activity 7 to illustrate that difference. **Activity 7** Divide the students into pairs to complete the activity. Instruct students to follow the steps provided in the textbook.

Plenary	
Time ~ 10 minutes	Summarise the lesson. Ensure student work is completed and any ambiguities are resolved. Provide feedback on **Activity 7**. Assign any incomplete tasks as homework.
Assessment focus	Understand how a robot works. Students should be able to identify the main parts of a robot.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	4	2
Unit number	Date	Time	Page number
1	9th September	45 minutes	26-29

Equipment required:	Learning objectives:
textbook pencil internet smart screen	1.2 Understand how a robot thinks. 1.4 Identify robots around us and their uses.
Keywords	machine, programming language, program

Starter activity

Time ~ 10 minutes	Are your students familiar with self-driving cars? Inform them about the driverless taxis that are going to be introduced in Dubai soon. You may show students this video: https://www.youtube.com/watch?v=aaOB-ErYq6Y You may also find this video on Sharepoint, under G3 > Unit 1 > Lesson 4 Encourage discussion about what makes a self-driving car a robot.

Main

Time ~ 30 minutes	Lead the discussion on towards household products that might be robots, e.g. iRobot's Roomba. Briefly explain why it is not a machine but a robot. Students should be able to complete Activity 8 at this point based on the knowledge they have accumulated so far. Activity 8: Discuss what makes a robot a robot. Ask questions like 'Which one of these have sensors?', etc., to direct students in the right direction. Remember, the activity is to figure out which one of these is **NOT** a robot. traffic lights, simple conveyor belt, bicycle Briefly talk about the Dubai Police robot. It should encourage students to think about robots as workers. Complete Activity 9. Activity 9:

	Encourage students to use knowledge acquired in this lesson to complete this activity.
	cleaning, making things, space exploration
	How do we talk to robots? Ask your students and encourage them to share their findings. Explain the concept of programming languages and what it means to program a robot.
Plenary	
Time ~ 5 minutes	Summarise the lesson and go over the keywords introduced in this lesson. Ensure student work is completed and any ambiguities are resolved. Assign any incomplete tasks as homework.
Assessment focus	Using their knowledge of a robot's main parts, students should be able to identify robots from simple machines.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	5	3
Unit number	Date	Time	Page number
1	16th September	45 minutes	30-37

Equipment required: textbook pencil	Learning objectives: 1.1 Define the terms robot and robotics. 1.2 Understand how a robot thinks. 1.3 Understand the main parts of a robot. 1.4 Identify robots around us and their uses.
Keywords	Robot, robotics, program, input, output

Starter activity

Time ~ 5 minutes	Recap the unit using the **Unit summary**. Quiz students about the vocabulary learned throughout the unit. You may choose to do this an activity (crossword, word search, etc.).

Main

Time ~ 35 minutes	Quiz students using the **End of unit quiz**. Attempt **Question 1**: Answers will vary Ask students if their pre-conception of what a robot is has changed after going through this unit. **Question 2:** You may want to show students how to solve a crossword puzzle before they start this question. Across: 1. robotics 2. program 3. robot Down: 1. drone 2. input 3. output **Question 3:** input, control system, output **Question 4:**

	how to design a robot, how to use a robot, how to make a robot, how a robot works To test their understanding of this unit, use the **Pop quiz** available at the end of the textbook. True; False; True; True; False The teacher and the students should complete the evaluation at the end of the unit.
Plenary	
Time ~ 5 minutes	Ensure student work is completed and any ambiguities are resolved. Make sure that everything in the unit has been **evaluated** and give the students appropriate **feedback**.
Assessment focus	Students should know what robotics is. They should be able to explain what a robot is and identify one.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	1	3
Unit number	Date	Time	Page number
2	16th September	45 minutes	40-47

Equipment required: textbook pencil edison	Learning objectives: 2.1 List all of **Edison's** main parts and **sensors**.
Keywords	Edison, sensor, infrared, LED

Starter activity

Time ~ 5 minutes	Introduce the **E-safety guidelines** as per the introduction in the unit. Review some of the important terms from the last unit as well to ensure continuity.

Main

Time ~ 30 minutes	Go through the **Learning objectives** and **Keywords**. You may choose to use a word-search puzzle to introduce new terms. Use visual aids and practical demonstrations when defining the keywords as it is very important that students are comfortable with these terms. Introduce **Edison**. Briefly describe the parts and components of Edison. You may pass around some Edison robots in the classroom so that students can actually see what you are describing. Relating this lesson back to what students learned in the last unit, complete Activity 1 and 2. **Activity 1:** Programming **Activity 2:** In Out | Input	Output	

	Buttons Clap sensor Light sensor Line-tracking sensor	LEDs Buzzer

Plenary

Time ~ 10 minutes	**Summarise** the lesson. Reinforce student learning by quizzing students about the sensors around them. Challenge them to find new ways to use different types of sensors.
Assessment focus	Identify the parts and components of an Edison robot.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	2	4
Unit number	Date	Time	Page number
2	23rd September	45 minutes	48-52

Equipment required:	Learning objectives:
textbook pen/pencil Edison	2.2 Understand how to use **Edison.** 2.3 Understand what a **barcode** is.

Keywords	Edison, barcode

Starter activity

Time ~ 10 minutes	Explain what a barcode is. Show students some barcodes. Encourage them to look around and find barcodes. Complete **Activity 3:** Answers may vary. Possible answers: Water bottles, textbooks etc.

Main

Time ~ 30 minutes	The concept of programming Edison is introduced in this unit. Quickly go through what Edison is capable of. Briefly introduce the two ways of programming an Edison robot. Relate this back to the **programming** section in Unit 1. Demonstrate how Edison can be programmed by **barcodes** using the example given in the textbook. Complete **Activity 4:** Once Edison has been programmed using the barcode provided in the textbook, press the play button. To trigger the program, clap or tap Edison's top surface. Edison moves forward Ensure each student gets a chance to program Edison and test it. Inform students that they are to complete the task sheet in the next lesson. Briefly explain the keywords, such as 'bounce in borders', and

	go through the checklist to ensure the students understand the marking criteria and the structure of the assessment.
Plenary	
Time ~ 5 minutes	Summarise the lesson. Remind students about the task sheet tomorrow.
Assessment focus	Students should know what barcodes are and how they can use them to program Edison.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdSclSPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	3	4
Unit number	Date	Time	Page number
2	23rd September	45 minutes	53-61

Equipment required:	Learning objectives:
Edison computer internet marker large paper	2.2 Understand how to use **Edison**. 2.4 Program **Edison** with ready-made **barcodes**.
Keywords	bounce, borders, follow, sumo wrestle

Starter activity

Time ~ 5 minutes	Remind students about the task sheet. Ensure they understand the requirements.

Main

Time ~ 35 minutes	Task Sheet: start by creating the track. This may be done as an individual, group or class activity. It is important that a large enough track is drawn as it is central to all the tasks in the task sheet. Ensure it is drawn on a large white piece of paper (preferably A2) and thick black marker is used for the boundary. A group of up to four students sharing the track is ideal. Afterwards, let the students program Edison using the barcodes available in the task sheet. Ensure the students check off items in the checklist as they progress through the worksheet.

Plenary

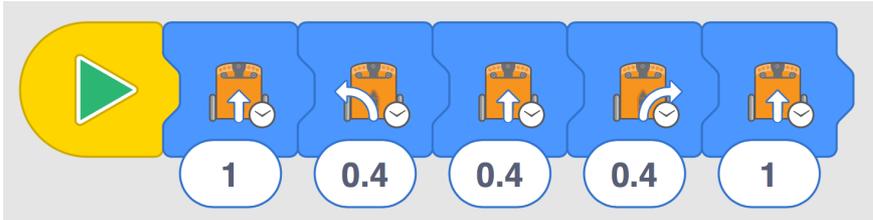| Time ~ 5 minutes	Ensure student work is completed and any ambiguities are resolved. At the end of the lesson, give feedback.
Assessment focus	Students should understand how to program Edison with barcodes.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	4	5
Unit number	Date	Time	Page number
2	30th September	45 minutes	62-71

Equipment required:	Learning objectives:
Edison computer internet	2.4 Understand how to use **Edison.** 2.5 Understand **EdBlocks**, its **interface** and how to use it.
Keywords	EdBlocks, program bar, title bar, programming area

Starter activity

Time ~ 5 minutes	Introduce **Keywords**. You may choose to do this using a crossword or word-search puzzle.

Main

Time ~ 30 minutes	In this lesson, **EdBlocks** is introduced. Explain how using this software allows for the creation of more versatile programs than barcodes. Before students start using the software, show them some images of the software interface and introduce useful terms, such as **Program Bar** and **Title Bar** so that the students are aware of the terminology in the textbook. Take students to the computer (alternatively, use laptops if students have access to them) and follow the step-by-step instructions in the textbook on how to program an Edison robot. Ensure everyone gets a chance to program Edison using EdBlocks. Complete **Activity 9**: After having used both barcodes and EdBlocks, it becomes obvious that EdBlocks is the more powerful and versatile tool. This is because we can create any program we want and modify them by adding or removing commands.

Plenary

Time ~ 10 minutes	Go through the **Unit summary**. Ensure that all work throughout the unit has been evaluated. Ensure student work is completed and any ambiguities are resolved. At the end of the lesson, give **feedback**.
Assessment focus	Students should familiarise themselves with EdBlocks and program Edison using it.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	1	5
Unit number	Date	Time	Page number
3	30th September	45 minutes	74-86

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil	3.2 Program Edison to move in any direction.

Keywords	motor, 90-degree, 180-degree, u-turn

Starter activity

Time ~ 10 minutes	Go through the **Unit overview**, **Learning objectives** and **Keywords** to start the lesson. Orally quiz students about some keywords from the last units to ensure they are up to speed.

Main

Time ~ 30 minutes	Before programming Edison to drive, students need to learn about motors. Take them through the '**Motor**' section in the textbook and complete **Activity 1**: Output Once completed, take students to the lab (alternatively, use laptops if students have access to them). Follow the step-by-step instructions to program Edison to drive. Complete **Activity 2**: Once Edison has been programmed to move, the distance it travels needs to be measured. Around 1 foot. Answers may vary according to surface. Introduce the terms 90-degree turn and 180-degree turn and use the step-by-step instructions in the book on how to program Edison to do these manoeuvres. **Activity 3**: Students need to calculate how long it takes for Edison to turn 90-degrees. They will need to adopt a trial and error approach. Around 0.4 seconds. Answers may vary slightly depending on the surface.

|	Activity 4: Students need to calculate how long it takes for Edison to turn 180-degrees. They will need to adopt a trial and error approach. About 0.8 seconds. Answers may slightly vary depending on the surface.
Plenary	
Time ~ 5 minutes	Summarise the lesson and orally quiz students about the new terms introduced.
Assessment focus	Students should know what motors are and how to operate them to make Edison move and turn.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	2	6
Unit number	Date	Time	Page number
3	7th October	45 minutes	87-89

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil large white paper marker	3.2 Program Edison to move in any direction

Keywords	blocks, program, track

Starter activity

Time ~ 5 minutes	Quiz students about motors and using EdBlocks.

Main

Time ~ 35 minutes	Complete **Activity 5:** First, students need to create a track as shown in the textbook. It can be drawn or outlined by using objects, such as textbooks or pencils, to mark the boundary. Access to a computer lab or laptops are needed to complete this task. For **Activity 5**, students will need to figure out how many times Edison has to turn, the direction of each turn and for how long to make the turn. Students may use the time the calculated in **Activity 3**. Once students have figured out the direction and time of each turn, they should draw it in their textbooks and program their Edison robots using EdBlocks. Possible solution:

	Introduce the speed block and demonstrate how to use it. Challenge students to modify their programs to make Edison cross the track in the shortest amount of time possible. They will need to re-do **Activity 5**. If Edison is set on the fastest speed setting, students will need to recalculate turn times and the time taken to move forward.
Plenary	
Time ~ 5 minutes	Summarise lesson. Give feedback to students on their programming efforts.
Assessment focus	Programming Edison to move in any direction.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	3	6
Unit number	Date	Time	Page number
3	7th October	45 minutes	90-97

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil	3.1 Program Edison to use LEDs.

Keywords	LED, blink

Starter activity

Time ~ 10 minutes	Introduce LEDs and explain what they are. Challenge them to identify any LEDs around them (including the LEDs on the Edison robot). Introduce the term 'blink'.

Main

Time ~ 30 minutes	For this lesson, access to a computer lab or laptops is needed. Instruct students to go through the step-by-step instructions in the book to program LEDs and complete **Activity 6:** Edison lights both LEDs. It does this for a short time. Introduce the **Wait block** and explain how it works. To demonstrate its effect, **program Edison** using the step-by-step instructions in the book on page numbers 93-94. Define the term 'blink' to ensure there is no ambiguity. Once the students understand, instruct them to program Edison to blink the right LED. The step-by-step instructions to create the program can be found in the textbook on page number 96. <u>Note for teacher:</u> To only program the left LED, instead of both LEDs, click on the arrow on the LED block and select Left LED. After this, put a Wait block. Then, use a 'Left LED off' block and put in another Wait block. Make sure both the Wait blocks are set to the same amount of time.

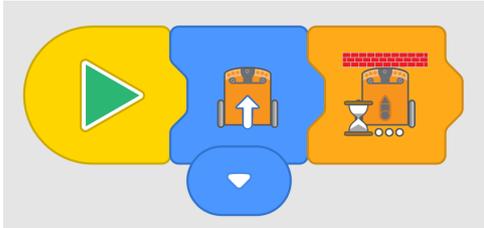| Plenary	
Time ~ 5 minutes	Summarise the lesson and quiz the students about the new programs introduced.
Assessment focus	Students should know what LEDs are and how to program them.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	4	7
Unit number	Date	Time	Page number
3	14th October	45 minutes	98-102

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil	3.3 Program Edison to repeat an instruction multiple times. 3.4 Understand how to use these blocks in combination with other blocks.

Keywords	loop, repeat

Starter activity

Time ~ 5 minutes	Define the term **loop**. Encourage discussion in the classroom about what it means. Ask students what it would do to a program in EdBlocks.

Main

Time ~ 35 minutes	The objective of this lesson is to introduce the **Loop function**. Access to a computer lab or laptops is needed for this lesson. Briefly reiterate what looping means and show them the block for it. Instruct students to follow the step-by-step instructions in the textbook to create their first program with a loop function. The instructions can be found on pages 98-99. Once everyone understands the use of the function, introduce the **different types of loop blocks** available in EdBlocks. Move on to **Activity 7**: First, students will need to determine which blocks to use to fulfil the program requirement. Once they have drawn in the blocks, they should program Edison using EdBlocks. Possible solution:
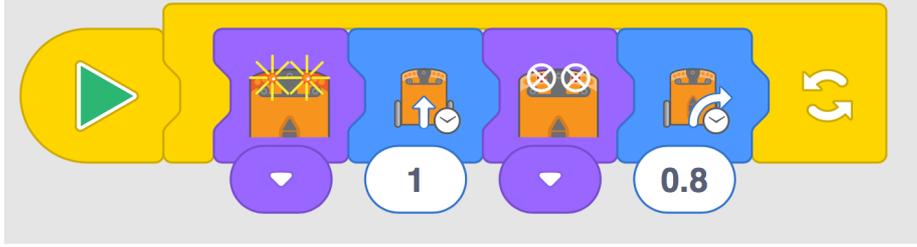
Challenge students to create more programs using the loop block.

Plenary	
Time ~ 5 minutes	Summarise the lesson and quiz the students about the different loop blocks and their use.
Assessment focus	Students should be able to use the loop function and combine the concepts they have learned in previous lessons to create complex programs.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	5	7
Unit number	Date	Time	Page number
3	14th October	45 minutes	102-108

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil	3.1 Program Edison to use LEDs. 3.2 Program Edison to move in any direction. 3.3 Program Edison to repeat an instruction multiple times. 3.4 Understand how to use these blocks in combination with other blocks.
Keywords	LED, motor, EdBlocks

Starter activity

Time ~ 10 minutes	You may choose to do a crossword puzzle to test the students' knowledge about the terms learned in this unit. This can be done as an individual or group activity.

Main

| Time ~ 30 minutes	Go through the **End of unit summary**. For **Question 1** in the End of unit quiz, students will need to fill in the time in the blocks using the instructions provided in the question. Next, they have to order the blocks so that they program is in the correct sequence. **Possible Solution:** Next, instruct the students to complete **Question 2**: 1. three 2. Loop 3. motor 4. 180 5. two; two Finally, students should attempt the **Pop quiz**.

	At this point, the students and the teacher should complete the evaluation. At the end of the lesson, the teacher should ensure that all work has been evaluated and feedback has been given.
Plenary	
Time ~ 5 minutes	Summarise the unit and ensure all work has been evaluated. Feedback should be given to everyone.
Assessment focus	Students should be able to create complex programs on EdBlocks using everything they have learned in this unit.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	1	8
Unit number	Date	Time	Page number
4	21st October	45 minutes	112-117

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil large white paper marker	4.1 Program Edison to follow a line.

Keywords	follow, track

Starter activity

Time ~ 10 minutes	Go through the **Unit overview**, **Learning objectives** and **Keywords** with the students. You may choose to introduce the keywords via an activity, such as a word search.

Main

Time ~ 30 minutes	Briefly explain what following a line means and how Edison is capable of doing that. Refer back to earlier units where sensors were introduced. Follow the step-by-step instructions in the textbook to program Edison to follow a line. Complete **Activity 1**: First, a track has to be created using a black marker on a large piece of white paper. The track created for the Unit 2 task sheet may be used. When creating the track, ensure the edges are as smooth as possible and there are no sharp turns. The line should be thick as well.

	Program Edison using EdBlocks. It is good practice to use the lowest speed setting first. Record Edison's time around the track to complete Activity 1. To improve the lap time, students may use faster speed settings. The drawback with faster settings is that Edison may not follow the line, especially if the turns are too sharp.
Plenary	
Time ~ 5 minutes	Summarise the lesson and give students feedback about their progress.
Assessment focus	Students should be able to use EdBlocks to program Edison to follow a line.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	2	8
Unit number	Date	Time	Page number
4	21st October	45 minutes	118-126

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil	4.2 Define infrared light and sensors. 4.3 Understand how obstacle detection works.

Keywords	detect, obstacles, infrared

Starter activity

Time ~ 5 minutes	Quiz students about the keywords in this unit. Do they remember infrared sensors? Quickly reintroduce this feature.

Main

Time ~ 30 minutes	Briefly explain what detecting an obstacle means and how Edison uses infrared light to detect obstacles. Complete **Activity 2**: Give students hints. For example, IR remotes always have an IR blaster on their front side. You may show students an IR blaster on the A/C remote. This will help students guess whether the PS4 controller uses IR technology or not. 1. YES 2. NO 3. YES Afterwards, instruct students to follow the step-by-step instructions in the textbook to create a program for obstacle detection. Instruct students to complete **Activity 3** by adding more blocks to that program.
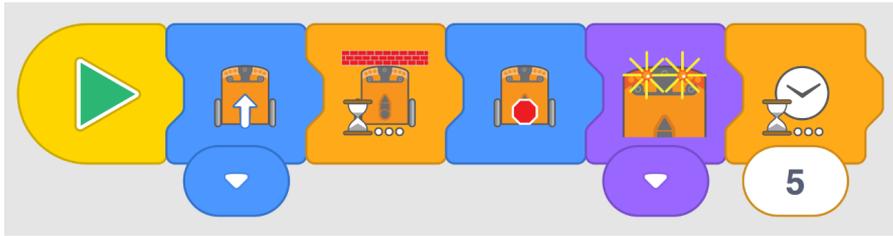
	Possible Solution:
	They should test it to ensure the program works. Ensure all students get to program Edison.

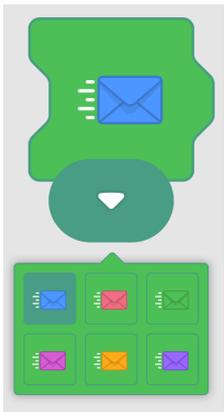| **Plenary**	
Time ~ 5 minutes	Quickly summarise the lesson. Inform students that they will complete the task sheet in the next lesson. Ensure that the students understand the marking criteria and the structure of the assessment.
Assessment focus	Students should be able to define infrared light and sensors. They should also show an understanding of how obstacle detection works.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	3	9
Unit number	Date	Time	Page number
4	28th October	45 minutes	127-131

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil	4.4 Program Edison to avoid obstacles.

Keywords	avoid, obstacle, loop

Starter activity

Time ~ 5 minutes	Ensure that the students understand the marking criteria and the structure of the assessment.

Main

Time ~ 30 minutes	Access to laptops or a computer lab is required for this lesson. Go through the objectives and **introduce the task**. The teacher may quickly review the previous lesson, where students used obstacle detection for the first time. Instruct students to go through the checklist one step at a time, and check off any completed steps. Once the required program has been created on EdBlocks, students need to demonstrate that it works by programming Edison. **Possible solution:** To be successful, students need to trap Edison on a table top. At the end, they should evaluate their work as per the instructions in the textbook.

Plenary	
Time ~ 5 minutes	Ensure everyone has completed the task sheet. Review the work and provide appropriate feedback to the students.
Assessment focus	Students should be able to program Edison to avoid obstacles.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	4	9
Unit number	Date	Time	Page number
4	28th October	45 minutes	132-138

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil	4.5 Program Edison to communicate with other Edison robots.

Keywords	infrared (IR), communicate

Starter activity

Time ~ 5 minutes	Review the students' knowledge of IR technology from the previous lessons. Demonstrate how Edison robots send messages to each other.

Main

| Time ~ 30 minutes	Once students are up to speed with how Edison robots use this technology to communicate, complete **Activity 5**: To give different instructions The block for sending messages can be found in the Program Bar in the Output tab. You will need two Edison robots. Program Edison 1 as directed in **Activity 6** and Edison 2 as directed in **Activity 8**.

Activity 6:
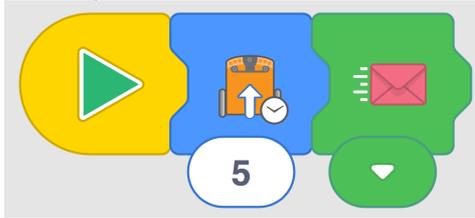
Activity 7:

Activity 8:
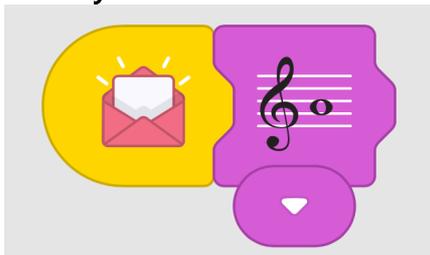
These activities will serve as a demonstration on how Edison robots can communicate with each other. Wrap up the unit by going through the **End of unit summary**. Complete the **End of unit quiz.**

1. The line-tracking sensor is on the top side of Edison.	False
2. Edison uses Bluetooth technology to send and receive messages.	False
3. Edison can detect obstacles using a camera at its front.	False
4. Edison can send messages to multiple Edison robots.	True
5. Edison can be controlled using a remote control.	True

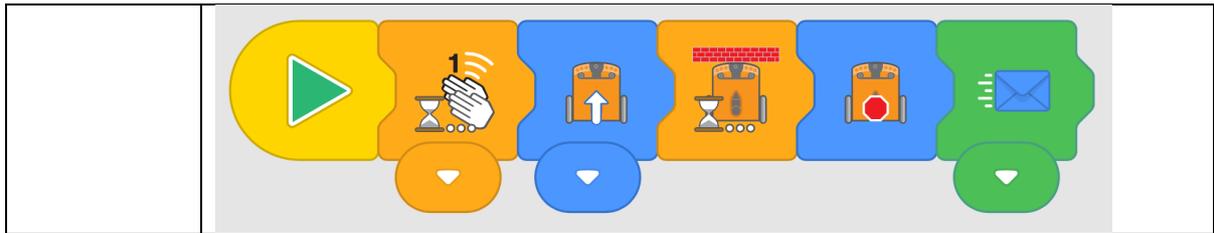|	
Plenary	
Time ~ 10 minutes	Summarise the lesson. At this point, the teacher must ensure that all student work has been evaluated and appropriate feedback has been given.
Assessment focus	Students must be able to program the Edison robot to communicate with other Edison robots.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	1	10
Unit number	Date	Time	Page number
5	4th November	45 minutes	140-147

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil	2.2 Understand how to use Edison 3.4 Understand how to use blocks in combination
Keywords	relay race, EdTank

Starter activity

Time ~ 10 minutes	Go through the **Unit overview**, **Learning objectives** and **Keywords** with the students. You may choose to introduce the keywords using an activity, such as a word-search puzzle.

Main

Time ~ 30 minutes	Unit 5 contains the end of year project. Students are to assemble EdTanks and use them in a relay race. Ensure students are made aware of the marking criteria. Briefly explain to students what a tank is. Introduce EdCreate LEGO kit and show them how they are going to turn Edison into an EdTank. You may choose to show them this video: https://www.youtube.com/watch?v=eliCo17bSck Introduce the concept of a relay race and explain what the project is about. Instruct students to complete **Activity 1**: 1. EdTank 2. EdBlocks 3. Answers may vary (refer to the marking criteria)

Plenary

Time ~ 5 minutes	Summarise the lesson and ensure that all student work, up to this point, has been evaluated and the appropriate feedback has been given.
Assessment focus	Students should complete the **Project brief**.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code:

	CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	2	10
Unit number	Date	Time	Page number
5	4th November	45 minutes	148-163

Equipment required: Edison computer internet textbook pen/pencil	Learning objectives: 5.1 Assemble EdTank
Keywords	supplier, leader, engineer

Starter activity

Time ~ 5 minutes	Quiz students about the **Project Brief.** Introduce **Keywords** for this lesson.

Main

Time ~ 30 minutes	Before starting **Assembly**, divide students into groups of 3 and assign them appropriate roles as per the textbook. Take them through the pre-assembly guide and familiarise them with Edison's connection points. Once ready, start the assembly. Make sure the students follow the step-by-step instructions as shown in the textbook. You may find it helpful to show students a video of the assembly: https://www.youtube.com/watch?v=eliCo17bSck You may also find the video on Sharepoint, under G3 > Unit 5 > Lesson 2. (Students only need to see the first half of it)

Plenary

Time ~ 5 mintues	Teacher should inspect the assembled EdTanks and evaluate the students' work.

Assessment focus	Students should be able to work in groups and, through collaboration, build EdTank.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	3	11
Unit number	Date	Time	Page number
5	11th November	45 minutes	164-166

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil	5.2 Program EdTank to do different tasks.

Keywords	stage

Starter activity	
Time ~ 10 minutes	Finish any leftover **Assembly** from the last lesson.

Main	
Time ~ 30 minutes	Show students the racetrack. Explain how it is divided into stages and how they need to program three different EdTanks for the three stages. Each stage requires EdTank to be programmed in a certain way. Before starting the Programming section, orally quiz the students about the blocks they will need to complete each stage. Students have to work individually for this part of the project. Afterwards, take students through stage 1 and instruct them to complete **Activity 2:** First, they need to select four blocks that will program EdTank as required. **Stop, drive forward, wait until obstacle detected, send blue message** Then, they need to arrange these blocks in the right order. **Solution:**

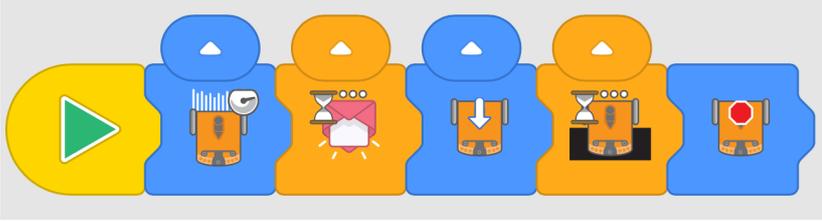|	
Plenary	
Time ~ 5 minutes	Briefly inform the students about the next two stages. The teacher must ensure that all student work up to this point has been evaluated and appropriate feedback has been given.
Assessment focus	Students will program EdTank as required by the project instructions.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	4	11
Unit number	Date	Time	Page number
5	11th November	45 minutes	166-170

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil	5.2 Program EdTank to do different tasks.

Keywords	stage

Starter activity

Time ~ 5 minutes	Summarise the work done up to this point.

Main

Time ~ 35 minutes	Finish the Programming section. Reiterate what stage 2 requires. Complete **Activity** 3:

First, students need to select four blocks.

Wait until blue message is received, follow line until obstacle detected, Stop, send pink message

Then, they need to put the blocks in the right order.
Solution:
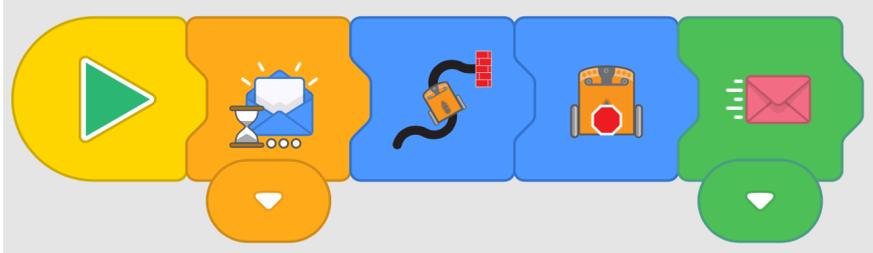
Explain what stage 3 requires. Complete **Activity** 4:

First, students need to select four blocks:
Wait until pink message is received, drive forward, wait until black surface is detected, stop.

Then, they need to put the blocks in the right order.

	Solution:

Plenary	
Time ~ 5 minutes	Ensure that the Programming section for all students is complete. Review the work and provide appropriate feedback.
Assessment focus	Students must program EdTank as required in the project brief.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code:

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Grade	Subject	Lesson number	Week number
3	DT	5	12
Unit number	Date	Time	Page number
5	18ᵗʰ November	45 minutes	170-171

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil race-track (circuit)	5.2 Program EdTank to do different tasks.

Keywords	testing

Starter activity

Time ~ 5 minutes	Inform students of the next steps in completing the project. Orally quiz them about the project and what they have done up to this point.

Main

Time ~ 30 minutes	The racetrack (circuit) should be printed on a large paper (A2 sized) before the start of this lesson. Ideally, each group should have their own racetrack. Instruct students to create programs on EdBlocks using the blocks they selected in the Programming section. It is vital that students drag and drop the blocks in the correct order. Once students have created the three programs, let each student (or each group of students) take three EdTanks and program them. Once Programming is complete, they should **test the programs** against the criteria in the textbook. Instruct them to complete the table on page once the testing is complete. If students fail any test, they have to modify the program(s) and re-do the tests.

Plenary

Time ~ 10 minutes	Review work up to this point. The teacher must ensure that all student work has been evaluated and appropriate feedback has been given.

Assessment focus	Students must be able to program EdTank as per the project brief. They must be able to test the program and modify it if needed.
Learning Curve	The entire course plus specific instructional videos are available on Learning Curve via this access code: CdScISPHcUaRPaZSe_9tHg

Grade	Subject	Lesson number	Week number
3	DT	6	12
Unit number	Date	Time	Page number
5	18th November	45 minutes	172-176

Equipment required:	Learning objectives:
Edison computer internet textbook pen/pencil	5.3 Self-evaluate own work. 5.4 Give feedback on peer projects.

Keywords	evaluation, review

Starter activity

Time ~ 10 minutes	Introduce the concept of self-evaluation and peer-evaluation. Discuss the benefits of these practices.

Main

Time ~ 25 minutes	Finish any testing left over from the previous lesson. Instruct the students to complete **self-evaluation** on pages 172-173. 2 stars are what they like about the project. - Wish is what they would like to have done better. It is critical that they are self-aware of their strengths and shortcomings. Encourage them to be as honest as possible. Next up is **peer-evaluation**. Students may choose the person sitting next to them or any friend. In addition to the table on page number 174, encourage students to give oral feedback to their peers as well. As this is the last lesson, it is vital that all work is completed.

Plenary

Time ~ 10 minutes	The teacher must ensure that all student work has been evaluated and provide individualised feedback. Discuss other ways to program EdTank with the students.
Assessment focus	Students must show the self-awareness required to evaluate their own work. They should also give feedback to their peer(s).

| Learning Curve | The entire course plus specific instructional videos are available on Learning Curve via this access code:

CdScISPHcUaRPaZSe_9tHg |