

Adult Guidance: A Short Quiz

Lesson 2

Children's individual solutions to creating the code may vary but trial and error and experimentation with ideas should be encouraged. It is good practice to save the coding regularly, using the **Save now** option in order to save the most recent version of their code. It is also advisable that teachers create a teacher's account in Scratch and create a space to see your class' work. Creating a teacher's account allows you to see each child's work in one space.

To set up a teacher's account, you will need to sign up to Scratch online using the **For Educators** option on the homepage and create a **Teacher Account**. The sign up page can be found here:

Once you have done this, click on **My Classes**, click **+ New Class**

and input your class' details.

You can also create studios for your class. This allows you to create collections for your class' various projects. To do this, click on **My Classes**, click **Studios** and click **+ New Class Studio**. You will need to name the studio and write a short description. Once you have done this, click **Add Class Studio** and your studio will be created. You can then add the children's projects to the studio you have created using the **Studios tab**.

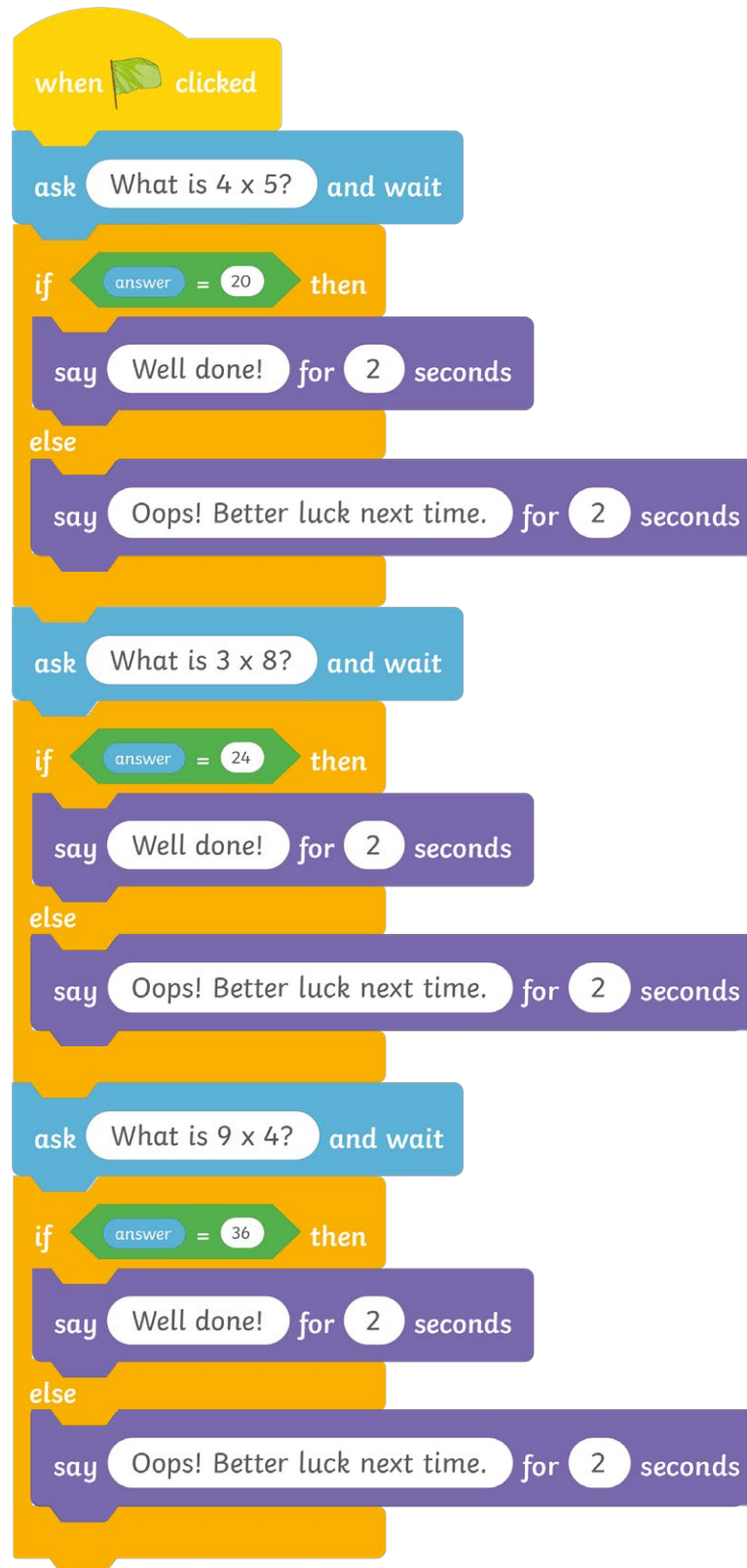
At the end of this lesson, it is recommended that children save their work under a new name that indicates 'Lesson 2 Quiz' or 'Maths Quiz' to allow for assessment against this lesson's success criteria.

Lesson 2 focuses on children learning to create a basic quiz. The purpose is to enable them to have a program with questions and answers that works. Children are encouraged to debug in this lesson and that this will be an important skill that they will develop throughout the unit.

Notes for Duplicating

The **Duplicate** function is very important in terms of saving time and also in ensuring that errors are minimised when creating a program with a large number of blocks. Ensure that children run and debug their first algorithm to avoid repeating the same error multiple times in their algorithm. A common error may be where children forget to change the question and answer, so could potentially duplicate blocks and have a quiz which displays the same question and answer throughout.

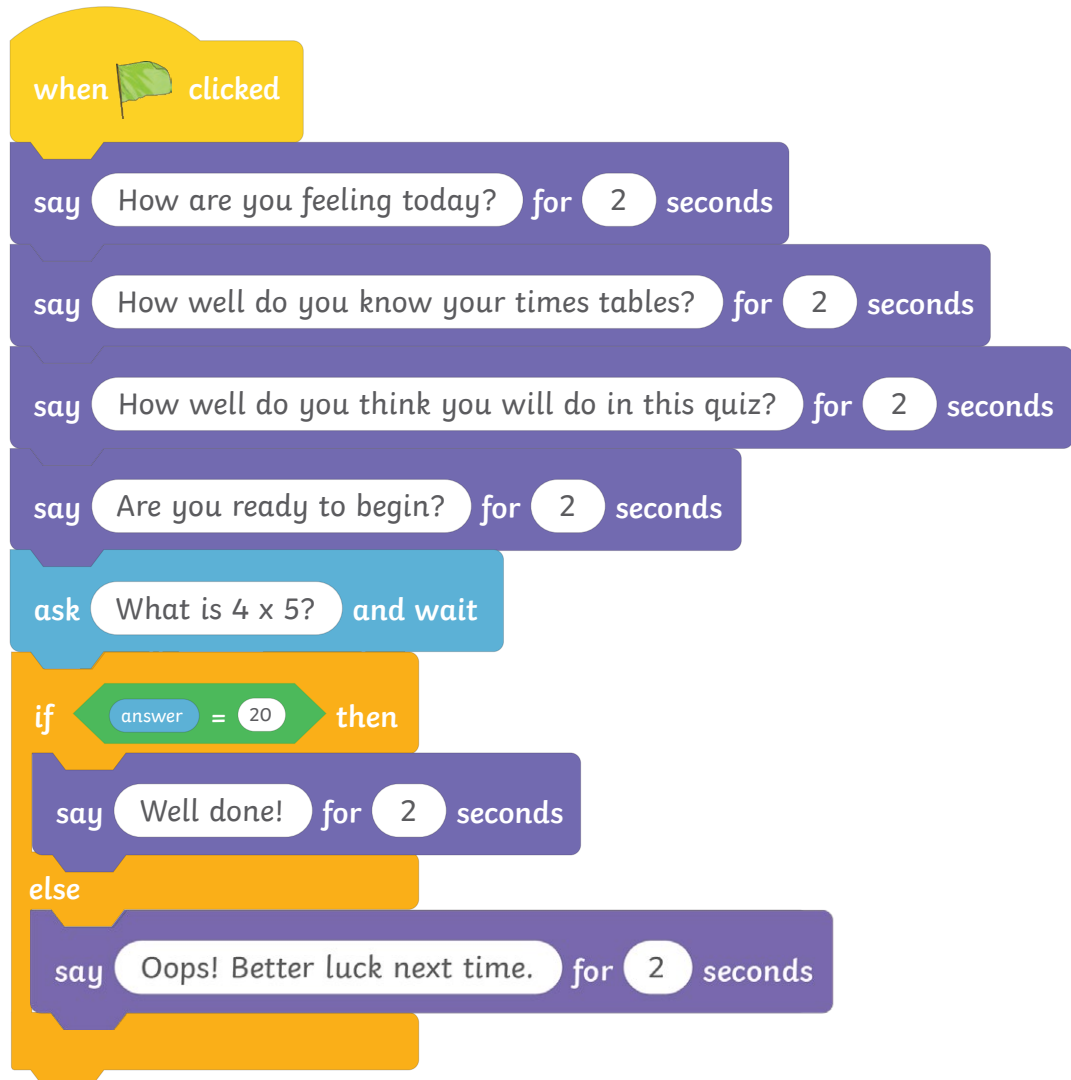
A possible solution to coding the quiz questions looks like this:



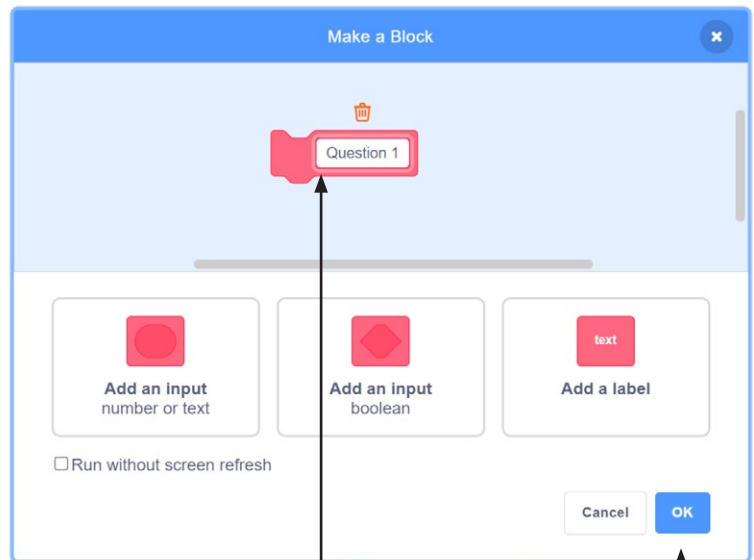
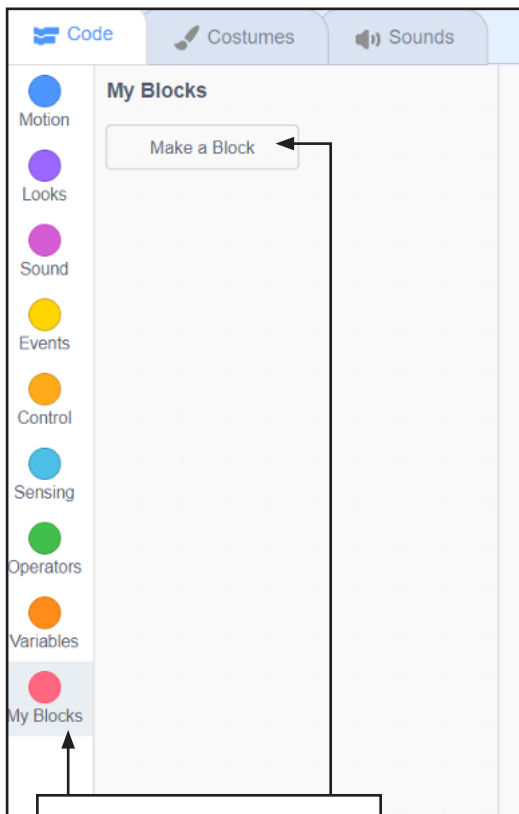
```
when clicked
ask "What is 4 x 5?" and wait
if answer = 20 then
say "Well done!" for 2 seconds
else
say "Oops! Better luck next time." for 2 seconds
ask "What is 3 x 8?" and wait
if answer = 24 then
say "Well done!" for 2 seconds
else
say "Oops! Better luck next time." for 2 seconds
ask "What is 9 x 4?" and wait
if answer = 36 then
say "Well done!" for 2 seconds
else
say "Oops! Better luck next time." for 2 seconds
```

The image shows a Scratch script with three identical question blocks. Each block starts with a yellow 'when clicked' block, followed by a blue 'ask' block with the question and 'and wait'. This is followed by an orange 'if' block with a green 'answer = [number]' block. The 'then' branch contains a purple 'say' block with 'Well done!' and 'for 2 seconds'. The 'else' branch contains a purple 'say' block with 'Oops! Better luck next time.' and 'for 2 seconds'.

For the children completing the ****Programming a Question Activity Sheet**, here is a possible approach to using **Looks** blocks to ask some open questions for the host to ask before the quiz begins:



For the children completing the ***Programming a Question Activity Sheet, here is a possible approach to repeating the question if the answer is incorrect:



Select My blocks

Click Make a Block.

Type in 'Question 1' and click OK

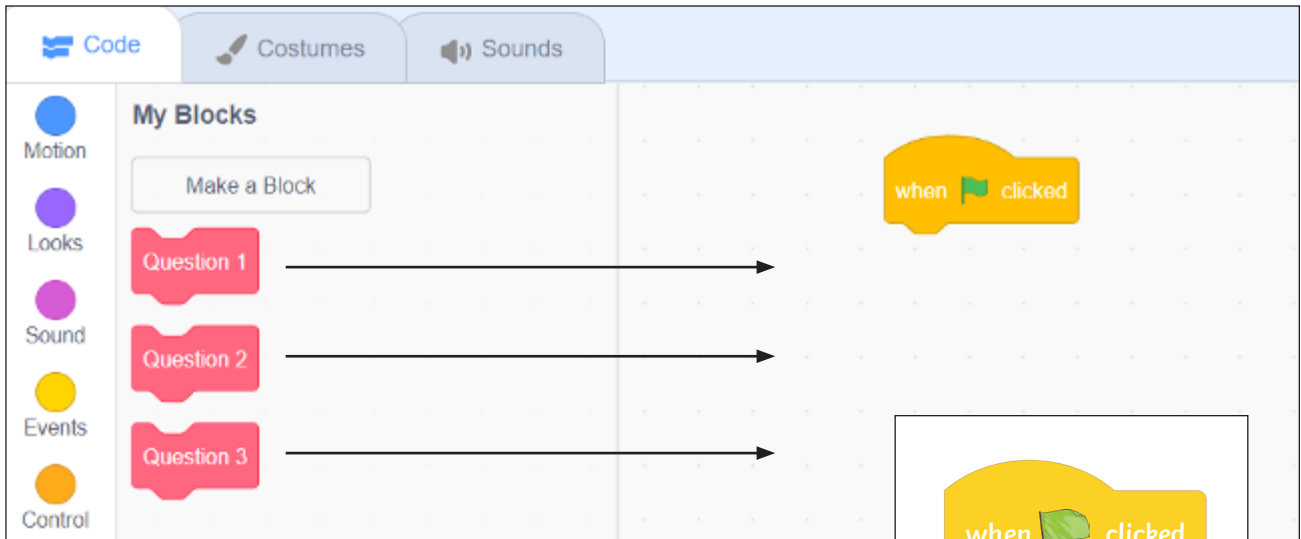
Repeat this process for all individual questions and snap the questions under each define block.

```

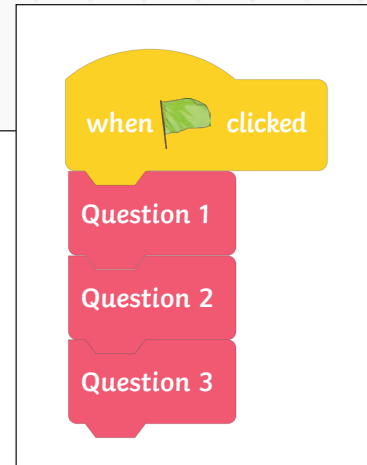
define Question 1
ask What is 4 x 5? and wait
if answer = 20 then
say Well done! for 2 seconds
else
say Oops! Better luck next time for 2 seconds
    
```

```

define Question 2
ask What is 3 x 8? and wait
if answer = 24 then
say Well done! for 2 seconds
else
say Oops! Better luck next time for 2 seconds
    
```

Detach the **when green flag clicked** block and place the **Question 1, 2 and 3** blocks underneath.



Then snap the **Question 1, 2 and 3** blocks underneath the **Looks** block in each individual question's **else** section. Make sure to change the text to something that indicates the question needs to be tried again.

```

define Question 1
ask What is 4 x 5? and wait
if answer = 20 then
say Well done! for 2 seconds
else
say Try again! for 2 seconds
Question 1
    
```


```

define Question 2
ask What is 3 x 8? and wait
if answer = 24 then
say Well done! for 2 seconds
else
say Try again! for 2 seconds
Question 2
    
```

```









define Question 3
ask What is 9 x 4? and wait
if answer = 36 then
say Well done! for 2 seconds
else
say Try again! for 2 seconds
Question 3
    
```




















Coding with Scratch: Questions and Quizzes: A Short Quiz

National Curriculum Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Aim To be able to use selection, duplication and sequencing to create a short quiz.		Lesson Duration It is estimated that this lesson will take approximately 60 minutes.  Approx.
Success Criteria I can create a sequence of questions using Scratch. I can identify how Operators work. I can use the selection 'if...then...else...' statements to produce different outcomes. I can use the duplicate function.	Key Vocabulary Algorithm, answer, block, Boolean operators, code, conditions, command, correct, debugging, duplication, errors, incorrect, program, quiz, repetition, selection, sequence, sprite.	
Resources Lesson Pack PC devices, such as laptops, Chromebooks and/or tablets Scratch Online version accessed via _____	Preparation If...Then...Else Activity Sheet - one per child Differentiated Programming a Question Activity Sheet - as required Please assess Lesson 2 (Teacher Example) - Questions and Quizzes within the _____ It is recommended to set up a 'Teacher's Account' on Scratch Online.	

Prior Learning: In the previous lesson, children will have looked at different types of quizzes as well as understanding how to create open and closed questions.

Learning Sequence

	Remember It: Use the questions in the Lesson Presentation as a prompt to recap what was learnt in the previous session. Then, look at what coding is using the correct terminology.	
	If...Then...: Using the Lesson Presentation , ask the children to match the if and then statements. Click on each 'if' statement to reveal the answers. The children can then create some of their own with a partner and feedback to the rest of the class.	
	If...Then...Else...: Using the Lesson Presentation , explore if...then...else selections and conditions, giving children the opportunity to match if...then...else...statements. Explain the use of selection and condition control blocks in Scratch introducing the if...then...else... block. Using the If...Then...Else Activity Sheet , the children will try to match the correct selection and condition scenarios and then have the chance to create their own. Which Scratch block could you nest inside the if...then...else... block?	
	Operators: Using the Lesson Presentation , explain what Operators are and how the children will be using these to create their quizzes.	

	<p>Programming a Question: Using the Programming a Question Activity Sheet, give the children the opportunity to create the first question for their quiz. The children will start with a mathematical question that relates to their multiplication facts. They will need to click on the create tab when they load Scratch, in order to create a new project for this activity.</p> <div style="display: flex; justify-content: space-between;"> <div data-bbox="215 241 582 465"> <p> Children will have a step-by-step instructional activity, where they are shown which blocks to use and the order they should appear. They are also given the text to type into the blank spaces.</p> </div> <div data-bbox="614 241 981 465"> <p> Children are given useful blocks to use and are instructed to create the first question by assessing which block to choose for each section of their algorithm.</p> </div> <div data-bbox="997 241 1380 548"> <p> Children are given bullet-pointed instructions without any useful blocks. They will need to find the blocks required with hints, as well as being given the opportunity to complete their own challenges. They will need to type their own multiplication question and answer for this one.</p> </div> </div> <p>Then, using the Lesson Presentation, show what the completed question should look like and explain what the function of each part of the algorithm is by clicking on the individual blocks.</p> <p>Why are the if...then...else... Control blocks useful to use in a quiz?</p>	
 	<p>Duplication and Sequencing: Using the Lesson Presentation, show the children how to duplicate a sequence of blocks. Then, show the children how you can move duplicated blocks together in a sequence, explaining that this is called repetition. This will create a short quiz. Access Lesson 2 (Teacher Example) in the _____ to show the children what their completed version should look like.</p> <p>Why do you think sequencing is so important?</p>	
 	<p>Saving Your Work: Using the Lesson Presentation, show the children how to save their file with a suitable file name so that it is easy to locate.</p>	
 	<p>Creating a Quiz: Using the Lesson Presentation, ask the children to now add to their previous quiz question in Scratch by using what they have learnt about duplication.</p>	
	<p>What Is Debugging?: Using the Lesson Presentation, ask the children to work with partners to discuss the answers to the given questions. Explain what the term debugging means and the reason behind its name.</p>	
 	<p>Test and Debug Programs: Using the Lesson Presentation, ask the children to read the questions displayed and use them as a basis to test and debug their partner's work. This should demonstrate all that they have learnt in this lesson.</p>	

Exploreit

Debugit: Ask the children to complete the [Unplugged Sequences and Debugging Activity Sheet](#). They will be able to demonstrate their understanding of sequence, repetition and debugging by continuing patterns and finding errors.

Sequencit: Using equipment around the classroom, such as beads, building bricks, counters, etc, ask the children to create their own sequences for a partner to continue. Can they create a sequence using the equipment and make it so that it needs debugging?

Assessment Notes:**Disclaimers:****External Links:**

This resource contains links to external websites and/or external apps. Please be aware that the inclusion of any link in this resource should not be taken as an endorsement of any kind by Twinkl of the linked website and/or app, or any association with its operators. You should also be aware that we have no control over the availability of the linked pages and/or apps. If the link is not working, please let us know by contacting TwinklCares and we will try to fix it although we can assume no responsibility if this is the case. We are not responsible for the content of external sites and/or external apps.

Scratch Safety:

Showing or creating the flashing sprite effect could be problematic for children with conditions such as epilepsy. Discretion is advised.

If...Then...Else...

To be able to use selection, duplication and sequencing to create a short quiz.

Have a look at the jumbled statements below and write them into the spaces provided in the Scratch **if...then...else...** blocks. You only need to complete two.

IF	THEN	ELSE
I wear my coat	I can see	it will still be dark
it rains	I'll be warm	I'll be cold
I switch on the light	we'll have a wet playtime	we'll go outside

if then

else

if then

else

If...Then...Else...

To be able to use selection, duplication and sequencing to create a short quiz.

Now it is your turn to create some **if...then...else...** statements of your own.

if then

else

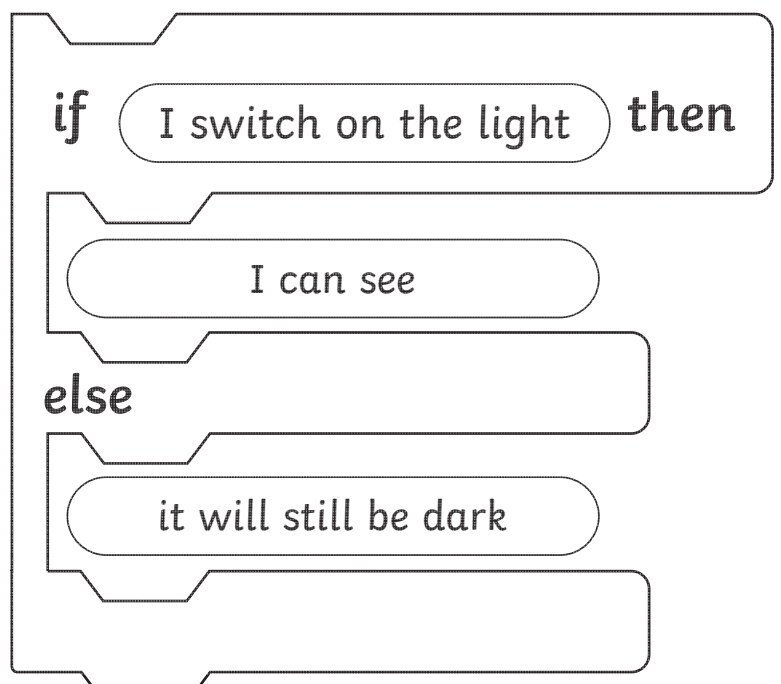
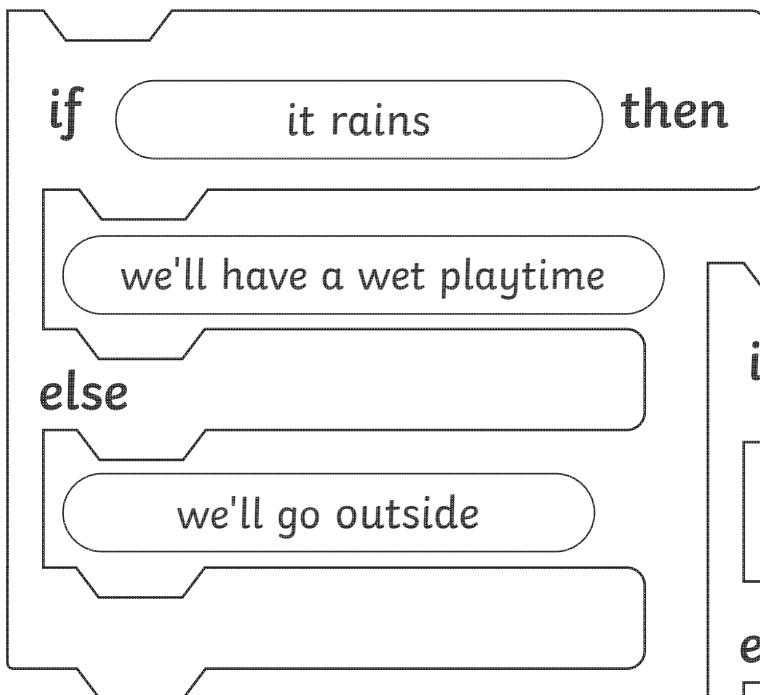
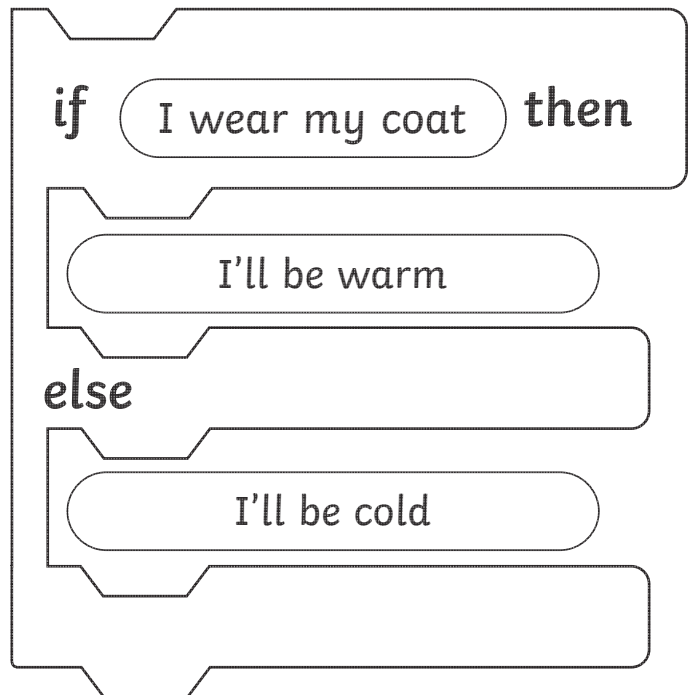
if then

else

if then

else

If...Then...Else... Answers



If...Then...Else...

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I switch on the light	we'll have a wet playtime	we'll go outside

if then

else

if then

else

If...Then...Else...

To be able to use selection, duplication and sequencing to create a short quiz.



Now it is your turn to create some **if...then...else...** statements of your own.

if then

else

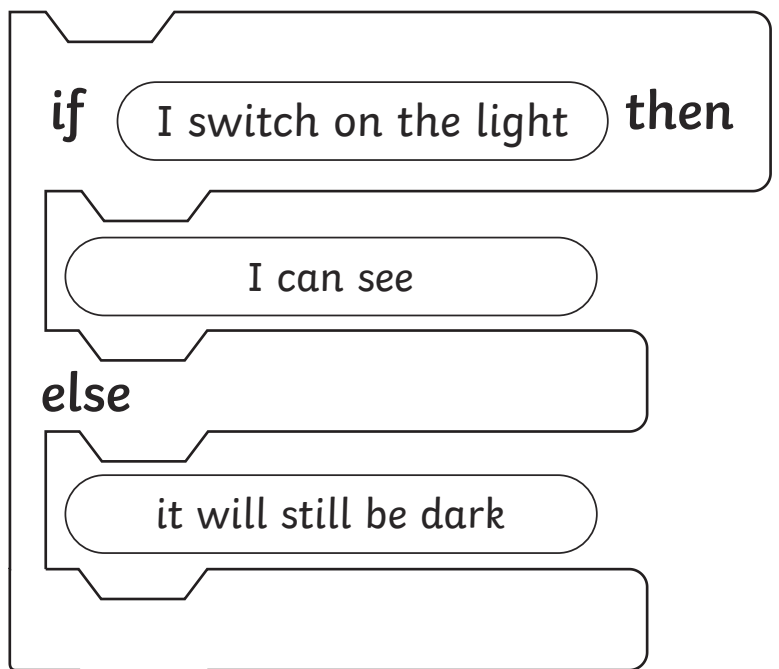
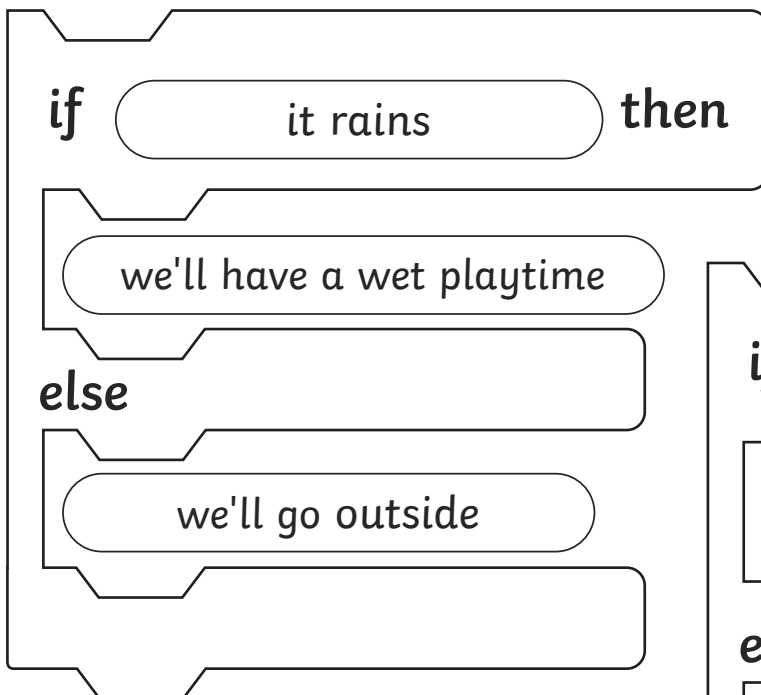
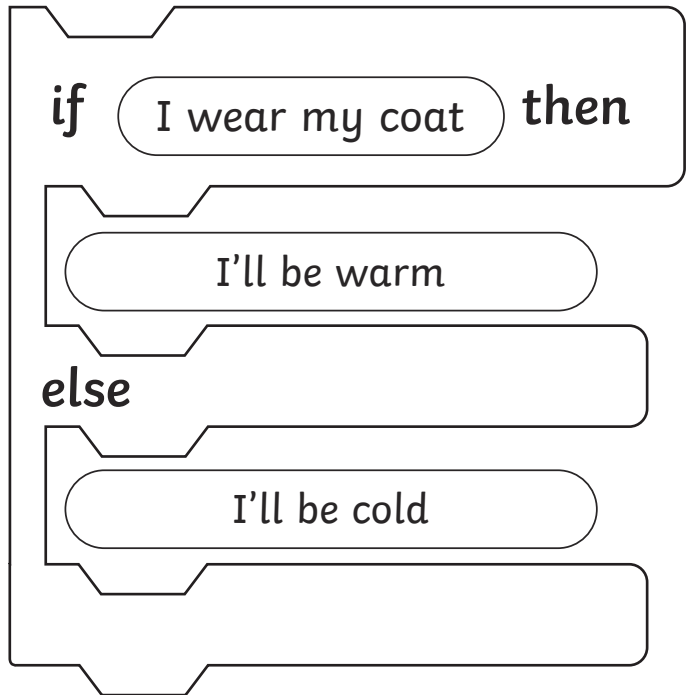
if then

else

if then

else

If...Then...Else... Answers



Programming a Question

To be able to use selection, duplication and sequencing to create a short quiz.

Use the blocks below to create an algorithm for a question. Look at how some blocks have a white, editable section to create new questions and answers.

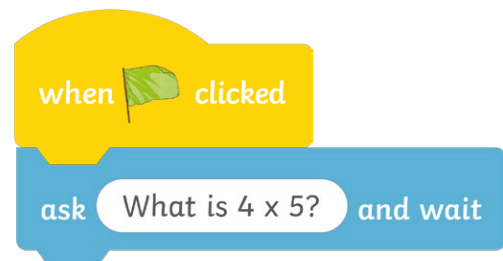
1. How do I start the algorithm?



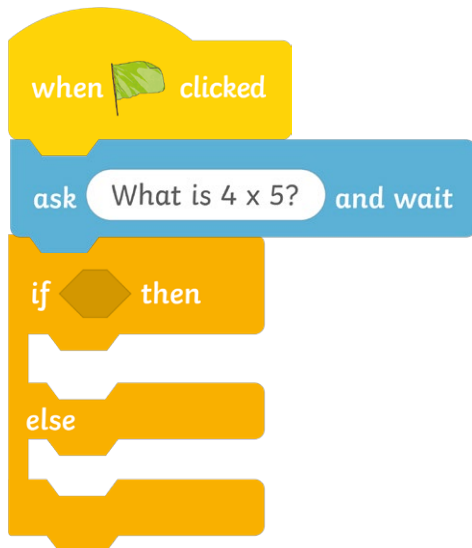
- Start with the block **when green flag clicked**.

2. How do I ask a question?

- Select the block **ask and wait** and snap this in underneath the **Events** block.
- Type the multiplication question 'What is 4 x 5?' into the empty space.



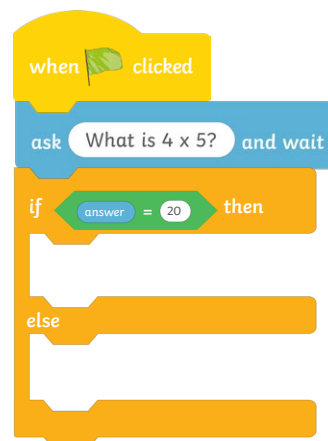
3. How do I create a conditional statement?



- Choose the **if...then...else** block and snap this underneath the **ask and wait** block.

4. How do I add an Operator block?

- Choose the **Operators** block with the = inside it and nest this inside the hexagonal space of the **if...then...else...** block.
- Choose the **answer** block and nest this in the left-hand side of the **Operators** block.

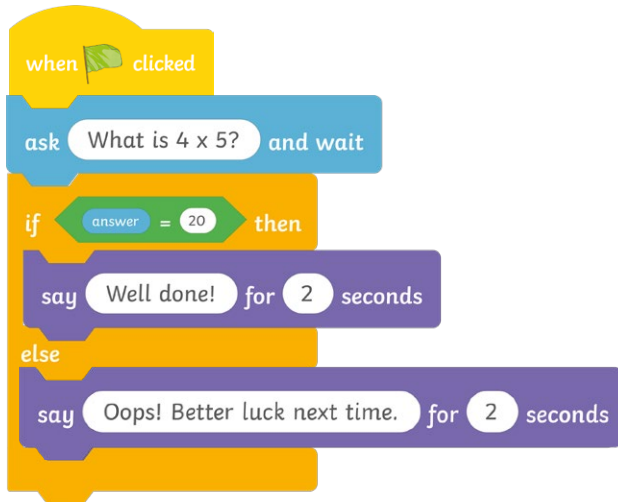


- Type the answer '20' in the right-hand side of the **Operators** block.

Programming a Question

To be able to use selection, duplication and sequencing to create a short quiz.

5. How do I create the outcomes?



- Select the **say for 2 seconds** block. Snap this in underneath the 'if' part of the conditional statement. Type in the editable space 'Well done!'
- Select another **say for 2 seconds** block and snap this underneath the 'else' part of the statement. Type 'Oops! Better luck next time.' in the editable space.

I can:

start a quiz by using an **Events** block;

type a question into an **ask** block;

use a conditional **if...then...else...** block;

insert an **Operators** block to set the correct answer;

display a message to congratulate players when they type the correct answer;

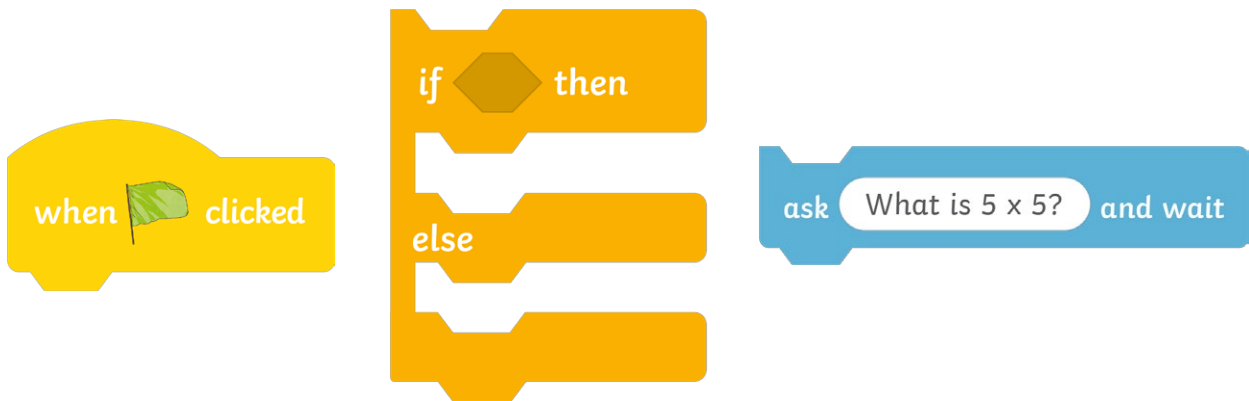
display a message to let players know they have typed the incorrect answer.

Programming a Question

To be able to use selection, duplication and sequencing to create a short quiz.

Use the useful blocks provided to create an algorithm for a question.

Look at how some blocks have a white, editable section to create new questions and answers.



1. How do I start the algorithm?

Start with an **Events** block so that when the green flag is clicked, the quiz can start.

2. How do I ask a question?

A new coding block is needed to ask a question. Use a **Sensing** block for this. Remember to type in the multiplication question in the editable space.

3. How do I create a conditional statement?

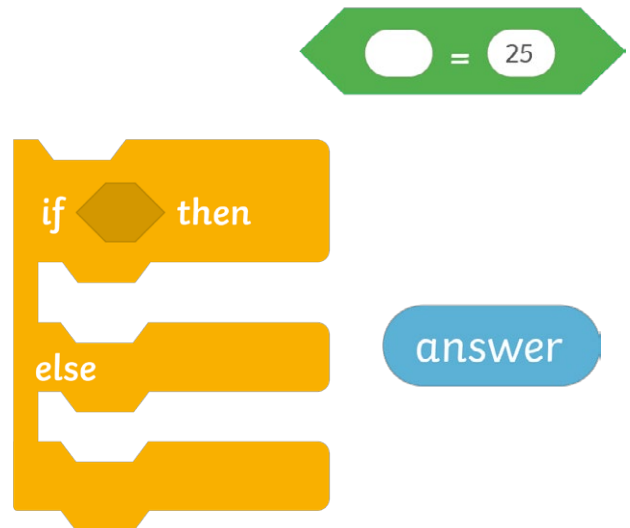
A **Control** block will need to be added underneath the question block to begin the conditional statement.

Programming a Question

To be able to use selection, duplication and sequencing to create a short quiz.

4. How do I add an Operators block?

Select a hexagonal **Operators** block and nest the **answer** block inside the blank space on the left. Then, nest the completed block inside the **Control** block. Make sure you have typed in the correct answer to your question.



5. How do I create the outcomes?

say Oops! Better luck next time. for 2 seconds

say Well done! for 2 seconds

Add two **Looks** blocks inside the **Control** block.

Challenge:

Can you use a **Looks** block to ask some open questions for the host to ask before the quiz begins?

Programming a Question

To be able to use selection, duplication and sequencing to create a short quiz.



I can:

start a quiz by using an **Events** block;

type a question into an **ask** block;

use a conditional **if...then...else...** block;

insert an **Operators** block to set the correct answer;

display a message to congratulate players when they type the correct answer;

display a message to let players know they have typed the incorrect answer.

Programming a Question

To be able to use selection, duplication and sequencing to create a short quiz.



1. How do I start the algorithm?

- Start with an **Events** block so that when the green flag is clicked, the quiz can start.

2. How do I ask a question?

- Select a **Sensing** block and snap this in underneath the **Events** block.
- Type a closed maths question into the empty space.

3. How do I create a conditional statement?

- Choose a **Control** block and snap this underneath the **Sensing** block.

4. How do I add an Operators Block?

- Choose an **Operators** block and nest this inside the **Control** block.
- Choose the **answer** block and nest this inside the **Operators** block.
- Type the answer which relates to the closed question into the **Operators** block.

5. How do I create the outcomes?

- Select the **Looks** block and type in a statement to reflect the answer as being correct.
- Select another **Looks** block and type in a statement to reflect the answer as being incorrect.

Challenge

Try to create code so that when the question is answered incorrectly, the **Looks** block says 'Try again.' and the code runs to repeat the same question again.

Programming a Question

To be able to use selection, duplication and sequencing to create a short quiz.



I can:

start a quiz by using an **Events** block;

type a question into an **ask** block;

use a conditional **if...then...else...** block;

insert an **Operators** block to set the correct answer;

display a message to congratulate players when they type the correct answer;

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Programming a Question

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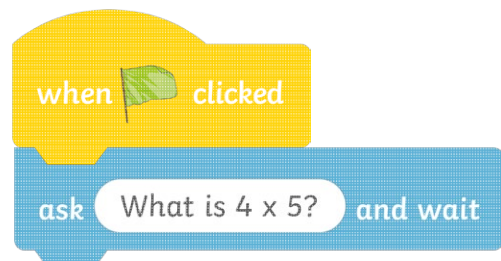
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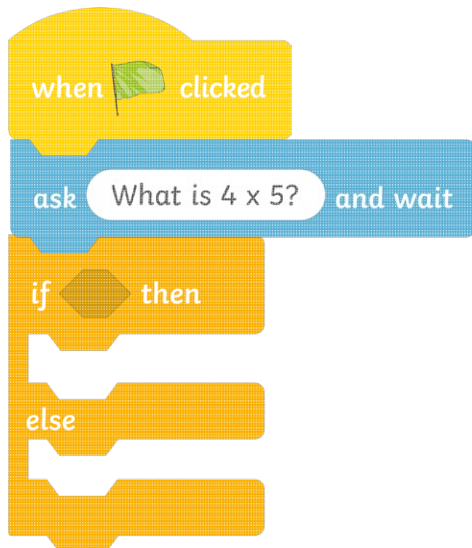
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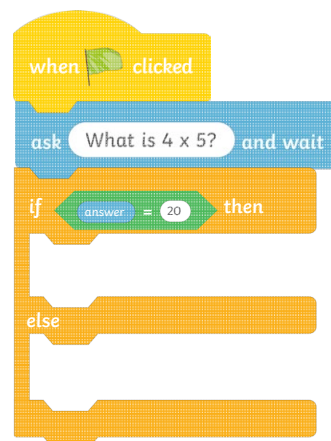
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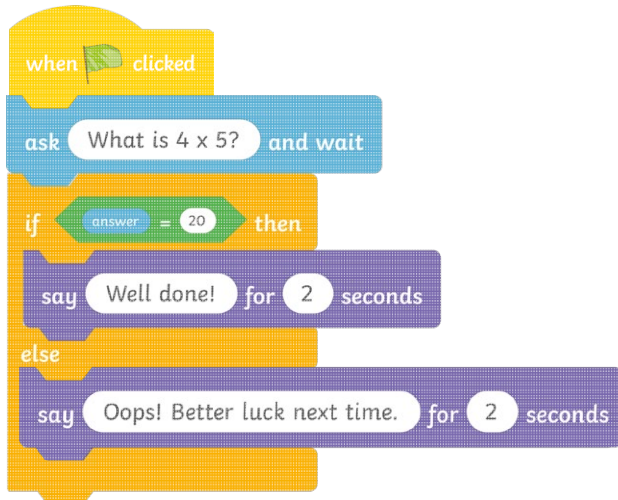


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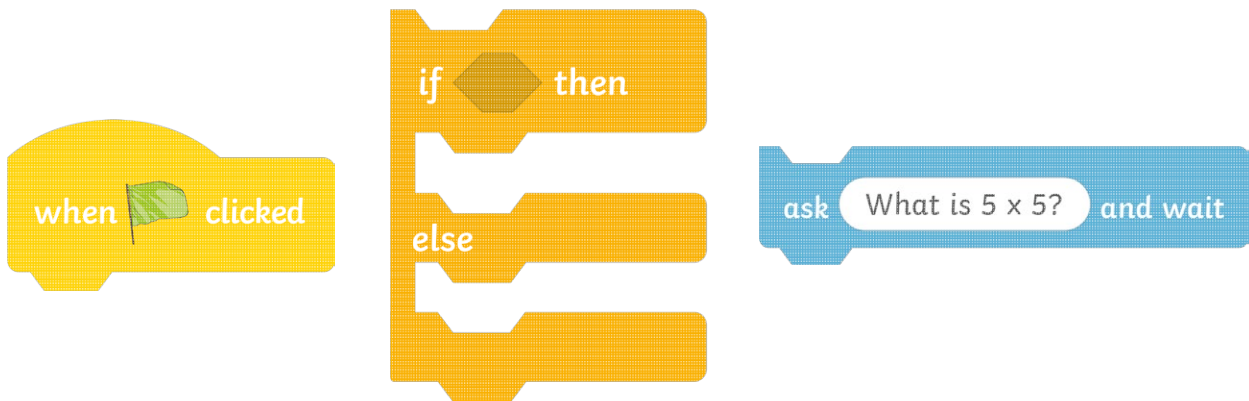
display a message to let players know they have typed the incorrect answer.

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Look at how some blocks have a white, editable section to create new questions and answers.



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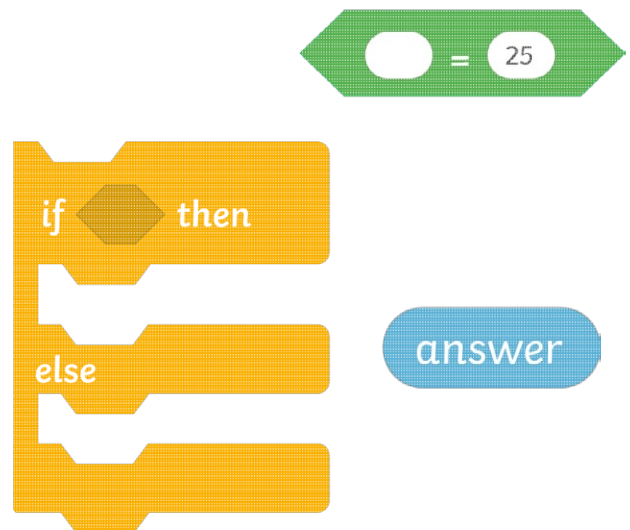
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use a conditional **if...then...else...** block;

insert an **Operators** block to set the correct answer;

display a message to congratulate players when they type the correct answer;

display a message to let players know they have typed the incorrect answer.

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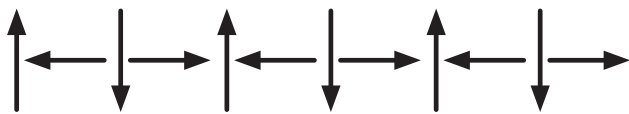

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display a message to congratulate players when they type the correct answer;




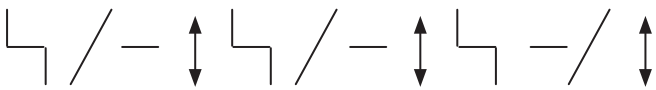
display a message to let players know they have typed the incorrect answer.

Unplugged Sequences and Debugging

Complete the sequences below. The first one has been done for you.

Now have a look at these sequences below. Something is wrong. Can you look at each sequence and debug them? Write the correct sequence in the space provided.

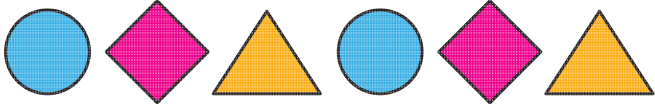
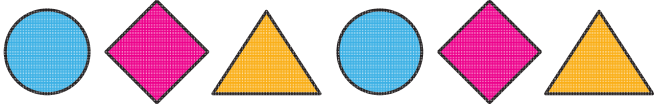
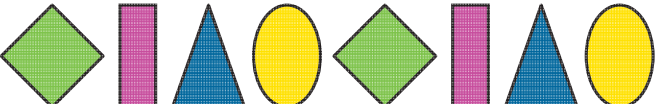
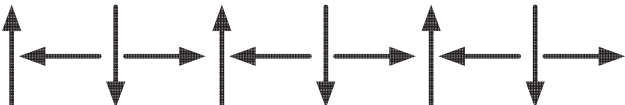
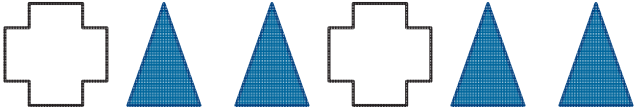
Unplugged Sequences and Debugging **Answers**

Complete the sequences below. The first one has been done for you.




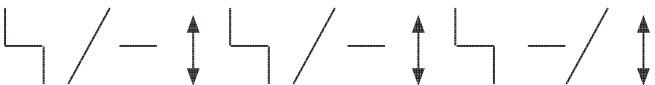
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To be able to use selection, duplication and sequencing to create a short quiz.		
I can create a sequence of questions using Scratch.		
I can identify how Operators work.		
I can use the selection 'if...then...else...' statements to produce different outcomes.		
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