Programming with ScratchJr: Sequencing

Aim:	**Success Criteria:**	**Resources:**
To understand that programs execute by following precise and unambiguous instructions. To create and debug simple programs. To use logical reasoning to predict the behaviour of simple programs. Children use a given background and character(s) to create sequences of linked instructions with increasing complexity. I can create programs with a sequence of linked instructions.	I can create a short set of instructions for a sequence of movements. I can create longer sequences of more complex instructions. I can use the 'WAIT' block. I can program two or more characters with instructions at the same time.	**Lesson Pack** Tablets (Apple, Amazon or Android) with ScratchJr app installed.
	Key/New Words: ScratchJr, tablet, blocks, programs, character, background, project, wait, sequence, instructions.	**Preparation:** Differentiated **Penguins Activity Sheet** - as required

Prior Learning: Children will have begun to create simple programs using ScratchJr app in Lessons 1-5.

Learning Sequence

	Penguins: Show the 'Arctic' background from ScratchJr, with a penguin character. Ask children what the penguin could be programmed to do. Encourage suggestions such as run, jump, spin, somersault, dive into the water etc.	
	Instruction Sequence: Show examples of some simple instruction sequences and see if children can predict what they will program the penguin to do.	
Whole Class	**Wait:** Introduce the block for WAIT and how it is used. Demonstrate as part of a sequence and ask children to describe how it would work and what it would look like in action.	
	Programming Penguins: Begin by verbally introducing the task of programming the penguin(s) to move and hop into the water, then turn invisible or somersault into the water. Allow children to attempt to create a working sequence first, before providing the with examples. Children can then edit or change their sequence as necessary. Can children create increasingly complex sequences of instructions to program a character? ★ Children use basic instruction sequences to move the penguin character. ★★ Children use instruction sequences with increasing complexity and additional blocks (including WAIT) and include a second penguin. ★★★ After creating the first set of complex instructions using a WAIT block, children use multiple further penguin characters. They distinguish them by renaming and recolouring.	
	Describing Instructions: Ask children to describe what actions they were able to program the penguin to do, describing the blocks used. In addition, or as alternative, use some example blocks to ask children if they can describe how to sequence some given instructions, such as jumping into the water and doing a somersault.	

Task*it*

***Write*it:** Write your own sentences about your ScratchJr penguin. 'The penguin…'

***Count*it** Practise counting activities with penguin pictures. How many penguins…?

***Watch*it:** Watch _____ jumping into water.

Avery Template: Name Badge Label, 8 per sheet | **Compatible Products**:15395, 25395, 42395, 45395, 48395, 5395, 8395, 88395, 85395.

Programming with ScratchJr | Sequencing

I can create programs with a sequence of linked instructions.		
I can create a short set of instructions for a sequence of movements.		
I can create longer sequences of more complex instructions.		
I can use the 'WAIT' block.		
I can program two or more characters with instructions at the same time.		

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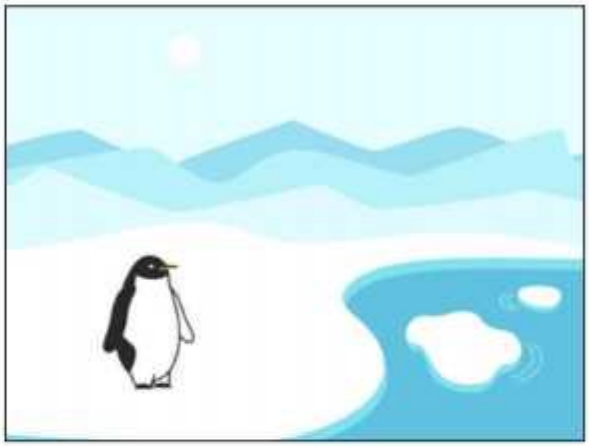
Penguins

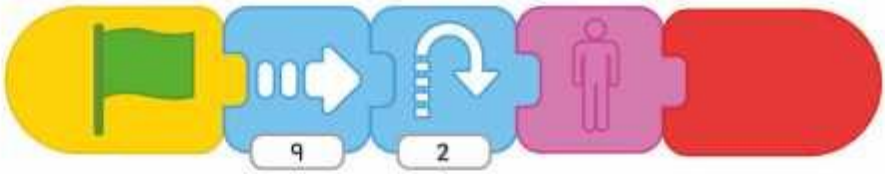
I can create programs with a sequence of linked instructions.

Open the ScratchJr app and start a new project in the My Projects screen.

Choose the **Arctic** background and add a **Penguin**. Delete the cat.



Add this sequence of instructions for your penguin:

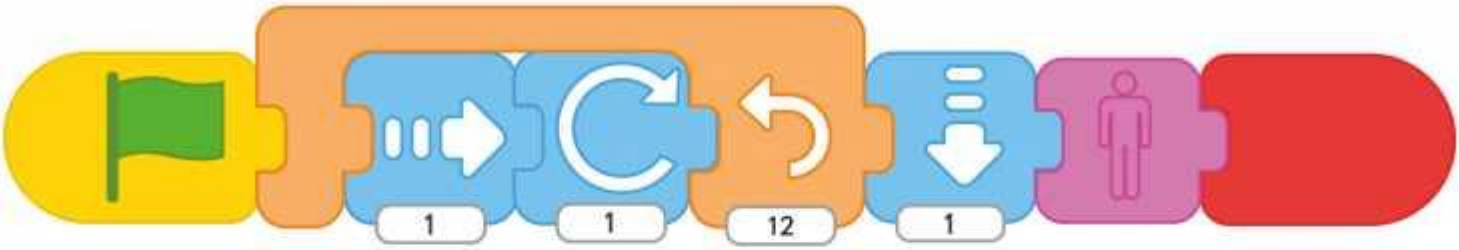


MOVE FORWARD 9, **HOP**, **HIDE**.

What happens after running the sequence once?

Add a **GO HOME** button after **GREEN FLAG**.

Try this sequence for the same (or another) penguin:



Try out your own sequences to make the penguin move in different ways!

Penguins

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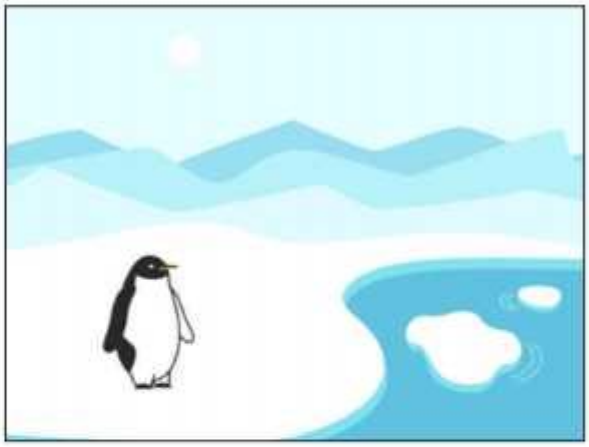

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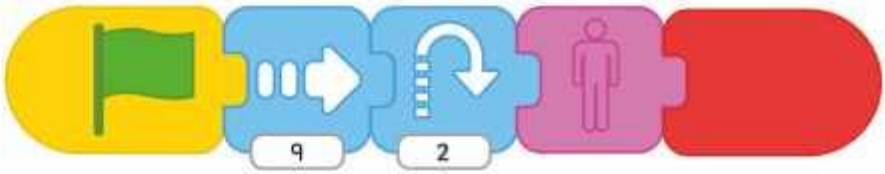
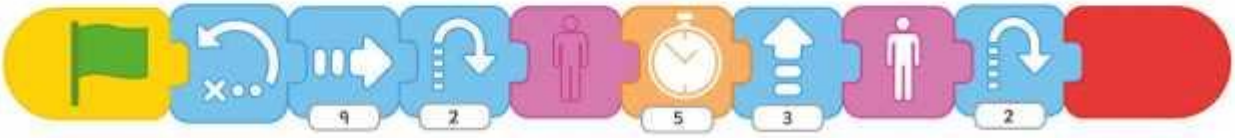
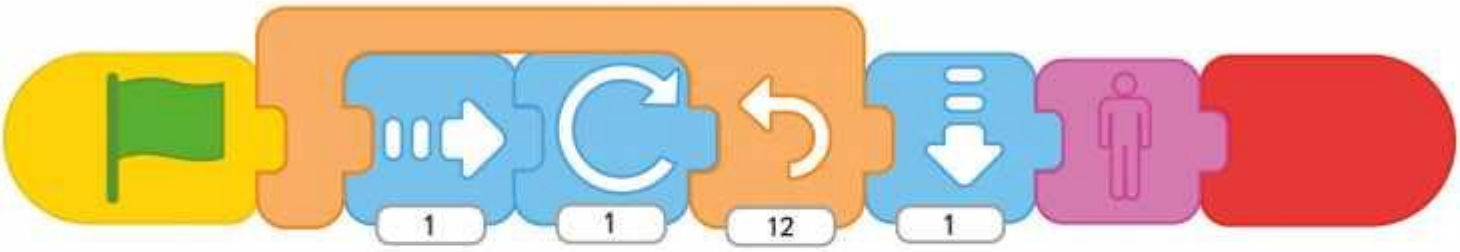


What happens after running the sequence once?

Add a **GO HOME** button after **GREEN FLAG** then add: **WAIT** for 5, **MOVE UP** 3, **SHOW**, **HOP**.





Try this sequence for another penguin. **Predict** what it will do before running it.

Penguins

I can create programs with a sequence of linked instructions.

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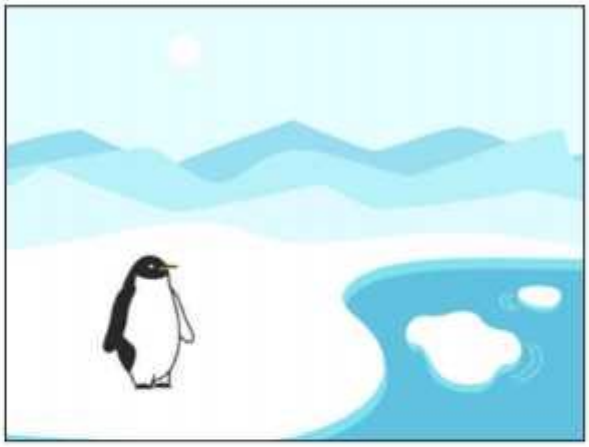

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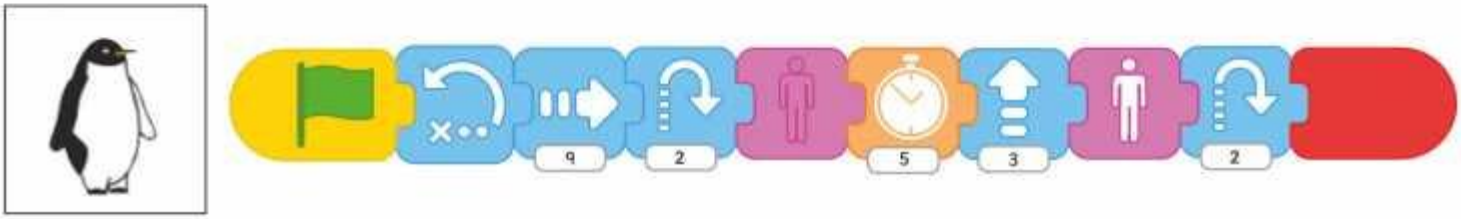
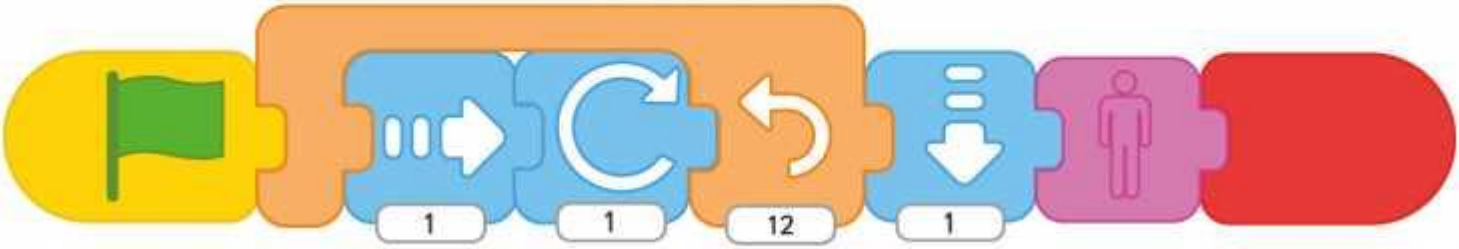


Add a second penguin and colour it a different colour. Rename as penguin2.

Try this sequence for another penguin. Predict what it will do before running it.



Try out your own sequences to make more penguins move in different ways!

Give each penguin a different colour and name.

Make them all start at the same time OR only start when you tap on them.

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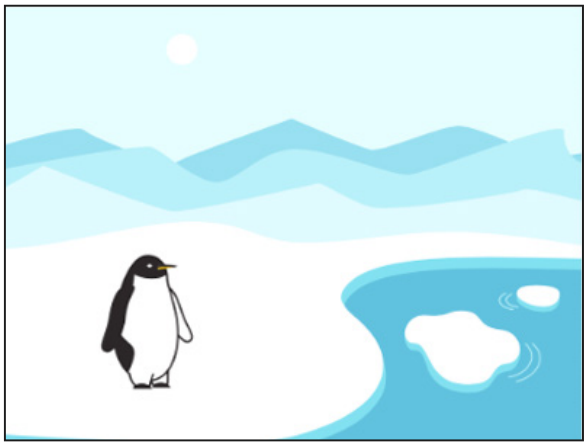

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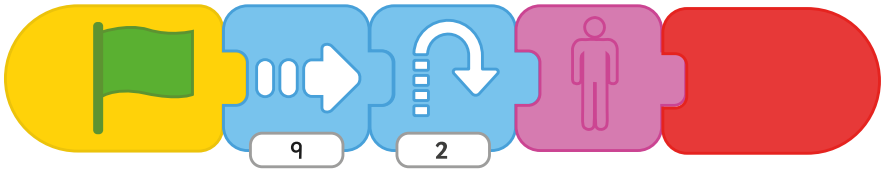

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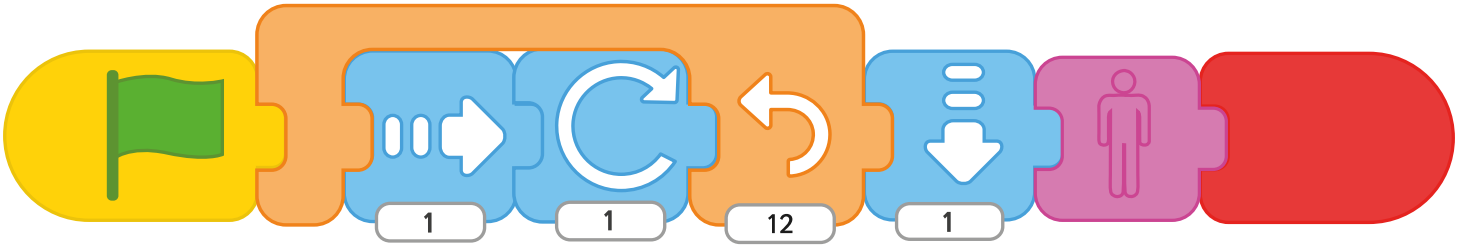

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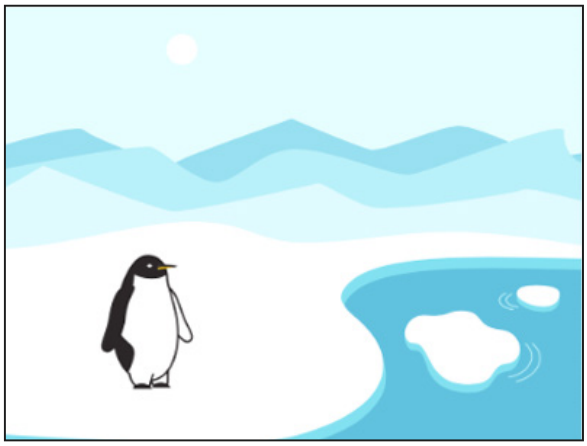

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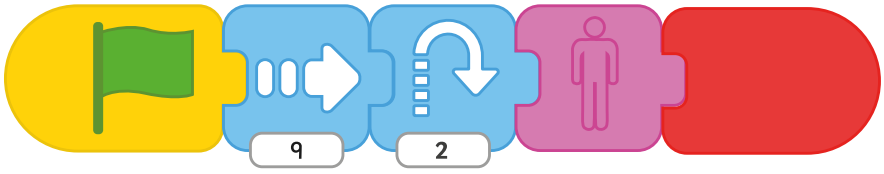

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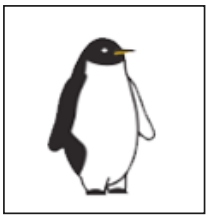

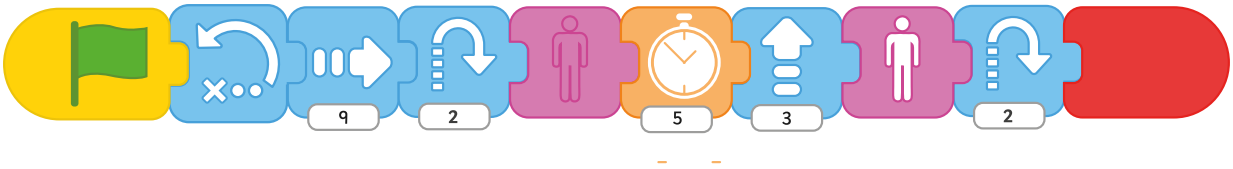

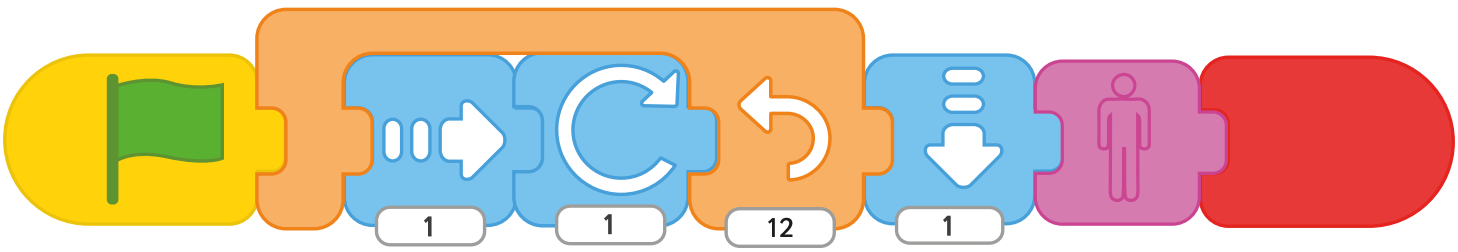

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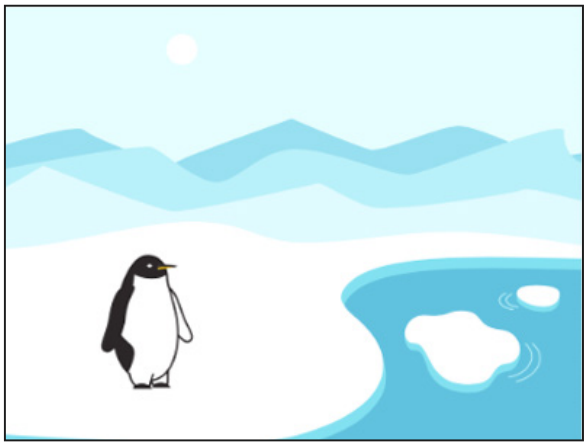

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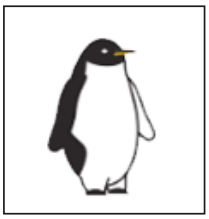

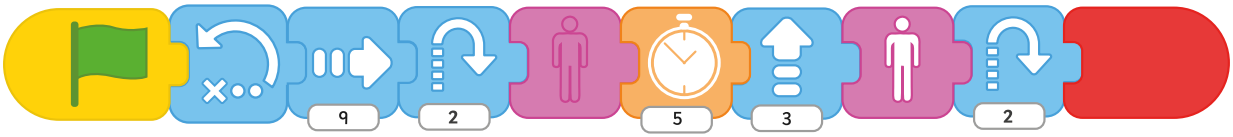

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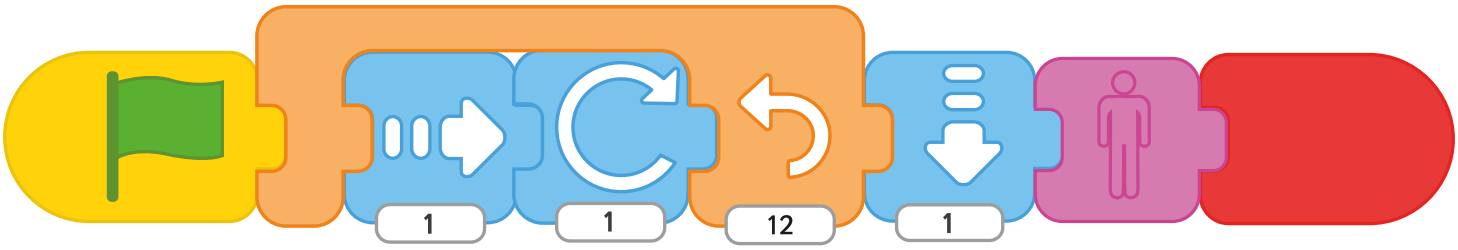


Try out your own sequences to make more penguins move in different ways!

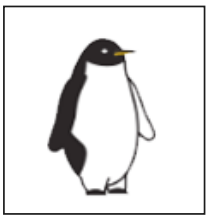
Give each penguin a different colour and name.

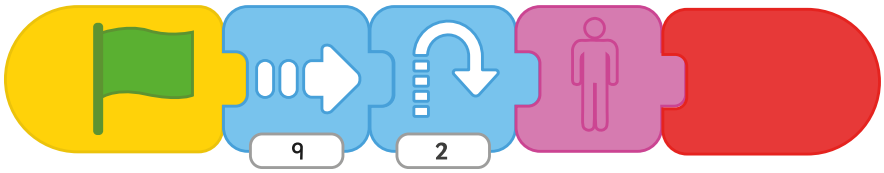
Make them all start at the same time OR only start when you tap on them.

Lesson 6: Sequencing

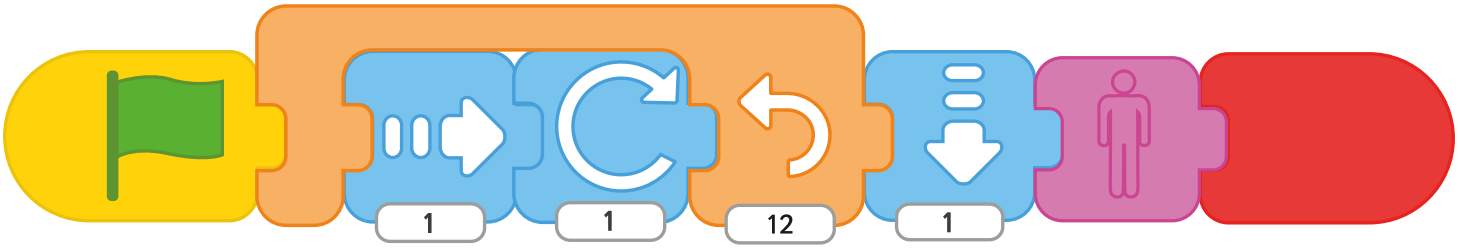
Example Sequences

In the first simple sequence below, the penguin moves to the right 9 units (as if walking forwards), then jumps and disappears (using the HIDE block). If positioned correctly, this can make the penguin appear to jump into the water. Children can experiment with starting the penguin in the correct place in order for it to look better.



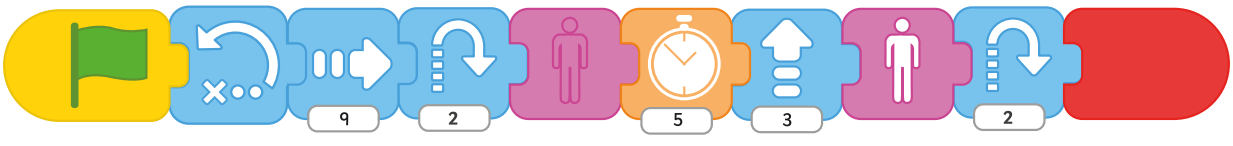


In this next sequence, the REPEAT block is used to perform 12 iterations. Each time, the penguin moves forward by 1 unit and then rotates 1 unit. The effect is that it appears to somersault forwards. At the end of the repeat section, the penguin moves down by one unit and disappears, seeming to have landed in the water – if positioned in the right place at the start.



In the extended sequence below, children are asked what happens after the HIDE block.

The penguin waits for a count of 5, then moves up 3 units (whilst still hidden). It then reappears, using the SHOW block and jumps. The effect is that the penguin appears to move underwater, then jump back out!



Computing

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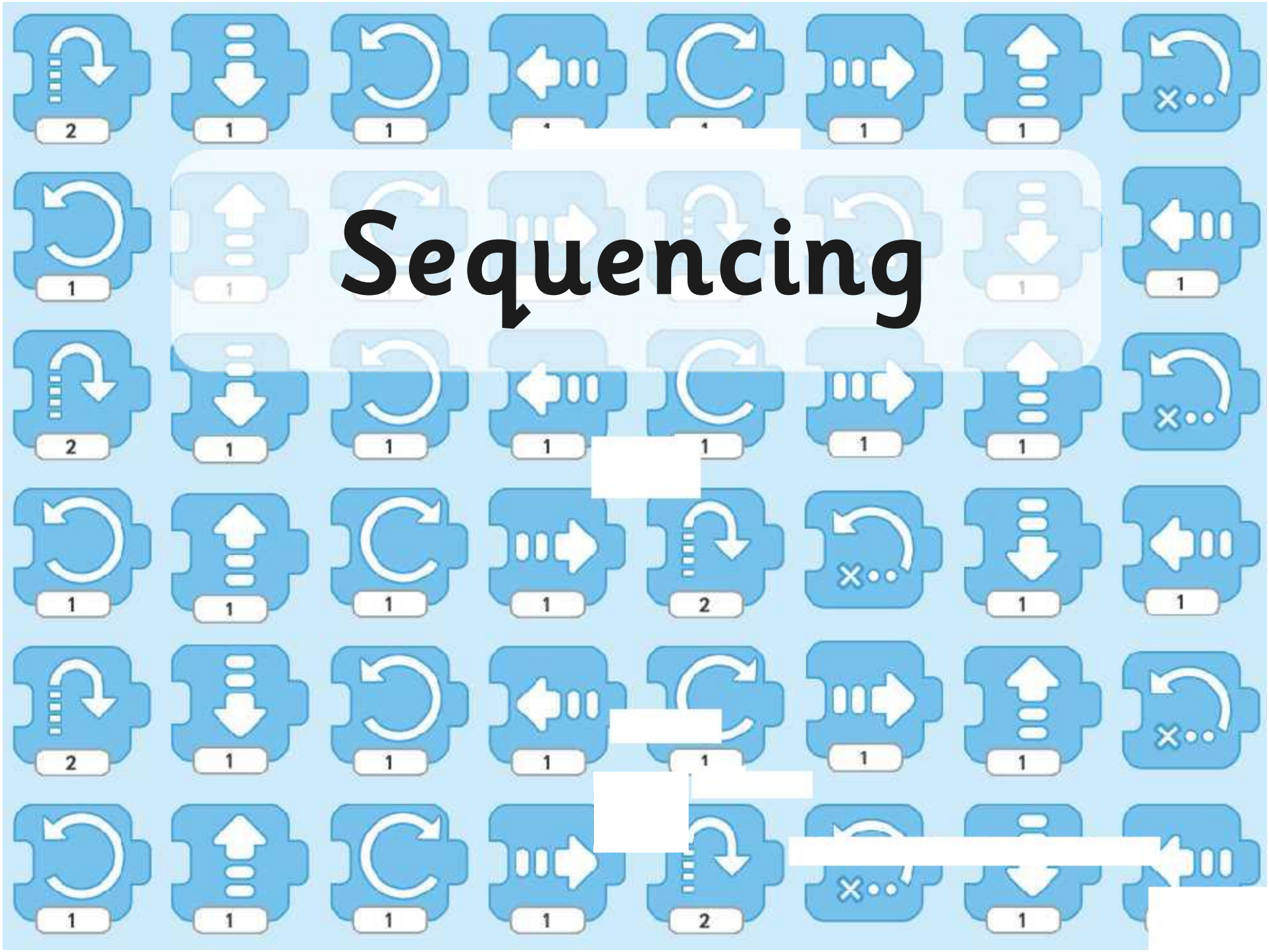

Sequencing

Aim

I can create programs with a sequence of linked instructions.

Success Criteria

- I can create a short set of instructions for a sequence of movements.
- I can create longer sequences of more complex instructions.
- I can use the 'WAIT' block.
- I can program two or more characters with instructions at the same time.

Penguins

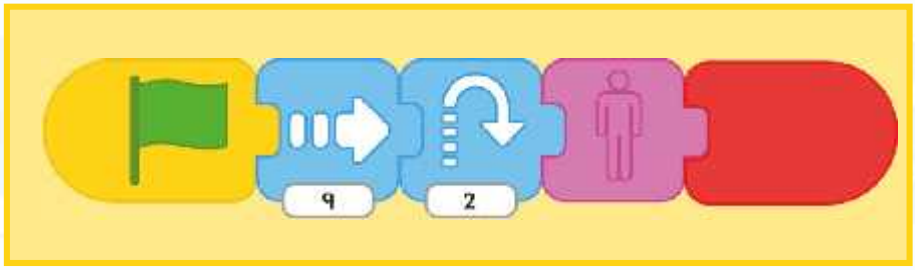
Look at this example of the 'Arctic' background from ScratchJr, with a penguin character.

What could the penguin be programmed to do, using the ScratchJr blocks that you know?

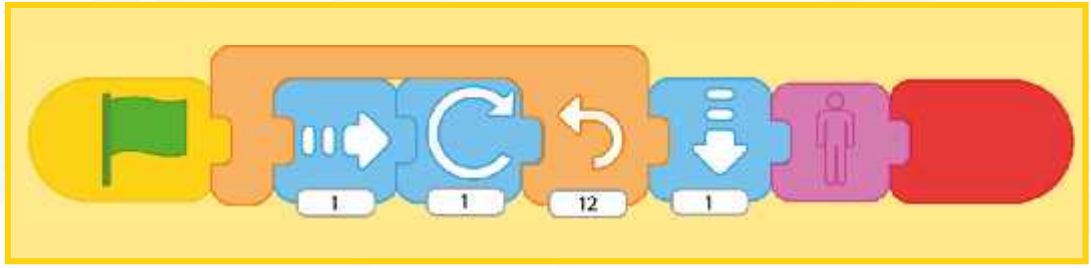
Ideas might include: run, jump, spin, somersault, dive into the water.

Instruction Sequences

What do you think this sequence of instructions will program the penguin to do?



What about this one?



Wait

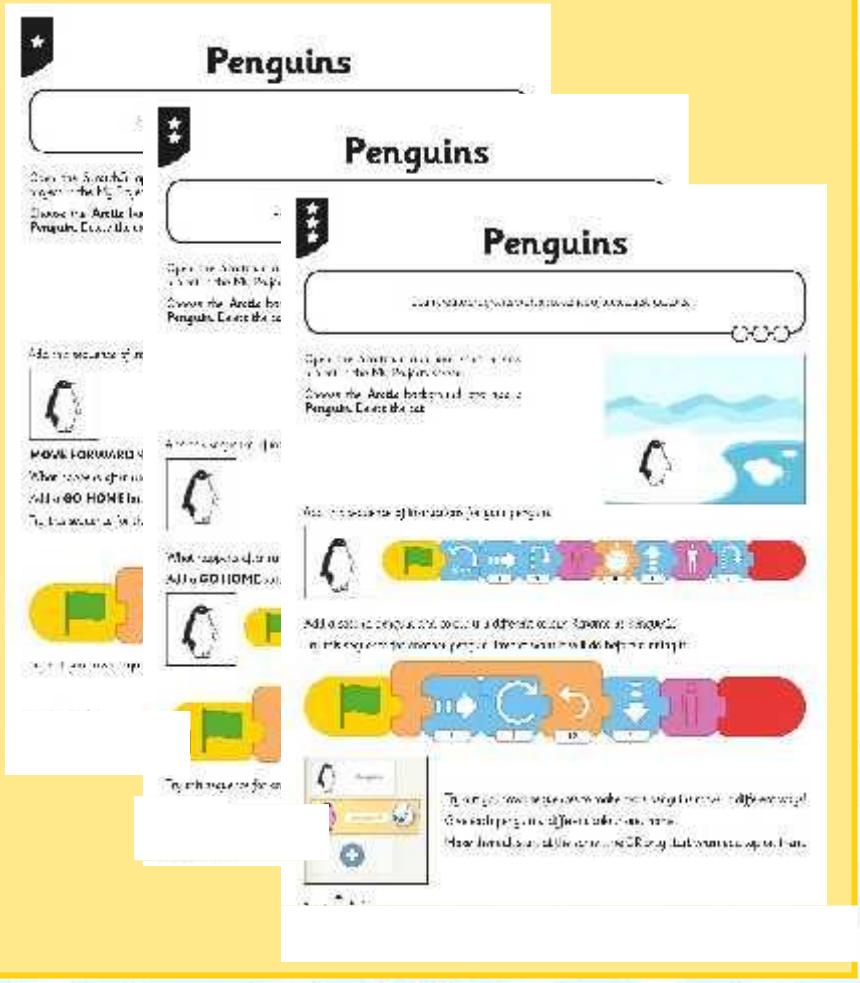
This block means WAIT.

If you use it in your instructions, it will make the character wait for a short time before moving onto the next block in the sequence.

Can anyone tell what happens here, after the HIDE block?

Programming Penguins

Use the Penguins Activity Sheet to add your own penguin to an Arctic background.



Can you follow the steps to create your own sequence of instructions for the penguin?

Try out your own ideas!

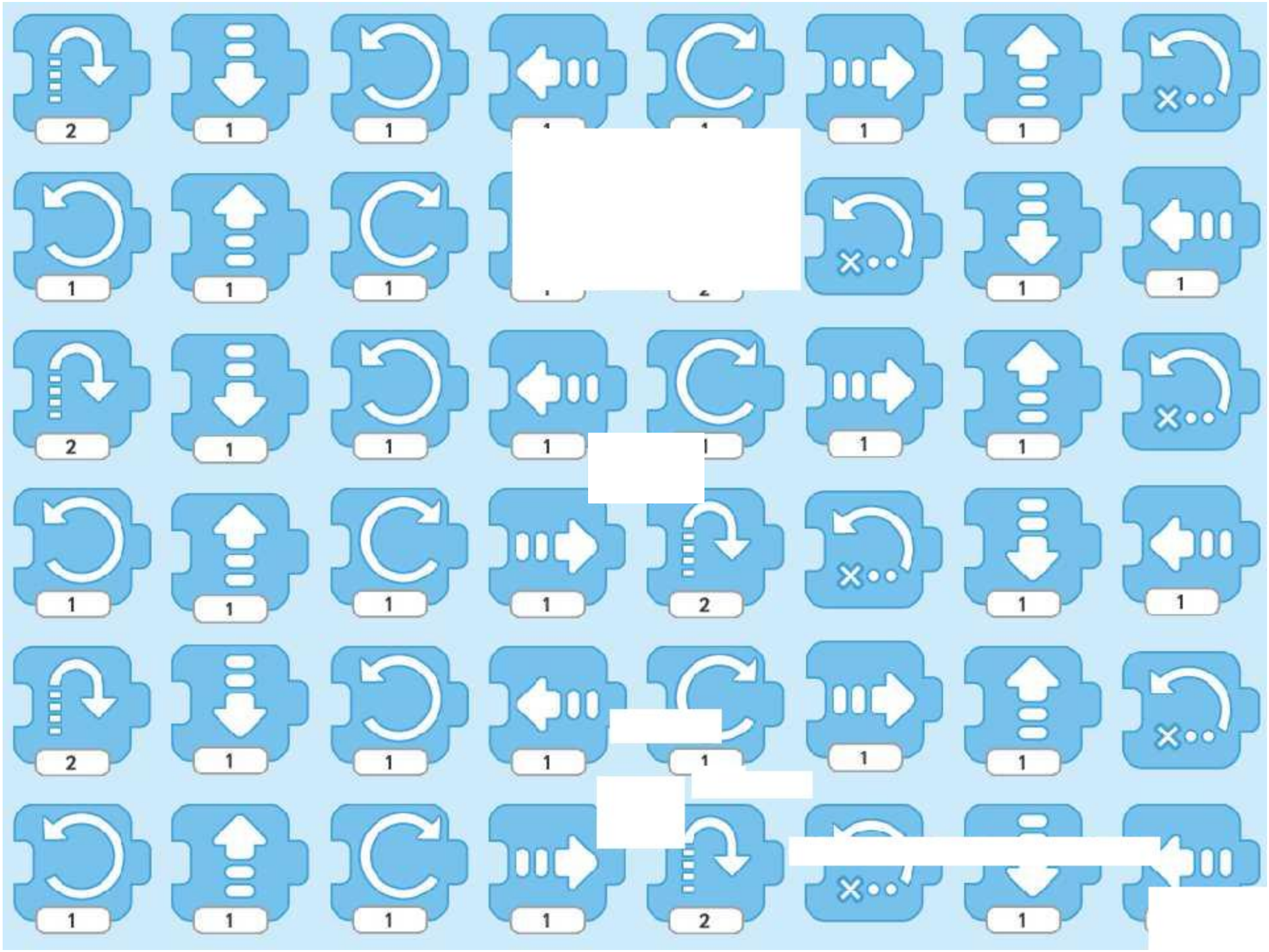
Describing Instructions

Can anyone describe what actions they were able to program the penguin to do?

Say which blocks were used.

Aim

I can create programs with a sequence of linked instructions.

Success Criteria

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