

Staircase Sequence

Desirable Features: Exploring Programming

Task Description

In this task pupils use suitable software, such as Black Cat Logo to create a staircase sequence using step by step instructions (Level 2) or using the repeat command (Level 3). They should make use of the tools available within the program.

This task also provides teachers with the opportunity to develop pupils' skills in numeracy (Using Mathematics).

Requirements for UICT

This task focuses on the following aspects of UICT across the curriculum which have been highlighted in **bold**.

Explore

- access, select, interpret and research information from safe and reliable sources;
- **investigate, make predictions and solve problems through interaction with digital tools.**

Express

- create, develop, present and publish ideas and information responsibly using a range of digital media and manipulate a range of assets to produce multimedia products.

Exchange

- communicate safely and responsibly using a range of contemporary digital methods and tools, exchanging, sharing, collaborating and developing ideas digitally.

Evaluate

- **talk about, review and make improvements to work, reflecting on the process and outcome and consider the sources and resources used, including safety, reliability and acceptability.**

Exhibit

- **manage and present their stored work and showcase their learning across the curriculum, using ICT safely and responsibly.**

Areas of Learning

Depending on the context chosen by the teacher, this task has the potential to support one or more of the following Areas of Learning:

The Arts	
Language and Literacy	
Mathematics and Numeracy	✓
Personal Development and Mutual Understanding	
Physical Education	
The World Around Us	

Please Note: For assessment purposes, only the 'E's that are covered at the level(s) stated on the task have been bolded.

Depending on how the task is approached, it may touch on elements of the unbolded 'E's, although not necessarily at the level(s) stated.

Staircase Sequence

Thinking Skills and Personal Capabilities

This assessment task also provides pupils with the opportunity to demonstrate one or more of the following aspects of Thinking Skills and Personal Capabilities:

Managing Information

Thinking, Problem-Solving and Decision-Making

Being Creative

Working with Others

Self-Management.

Prior Knowledge/Experience

Depending on the level at which they are working, pupils should have some experience in some of the following:

- using Black Cat Logo or other suitable logo software;
- using simple commands to draw shapes and patterns;
- using the repeat command to draw shapes and patterns; and
- altering pen width, colour and pen up/down;
- saving and printing work.

Resources

Suitable software e.g. Black Cat Logo.

Pupil Notes.

Optional: This task can be used with Scratch.
See pupil notes.

Managing the Task

Pupils should be given opportunities to:

Plan

Pupils should use the diagram and space provided on the exemplar pupil notes to think about and record their step by step instructions or their repeat commands.

Do

Pupils should work individually to test their planned instructions to produce the "Staircase Sequence". They should save and print their work.

Review

Pupils should be given the opportunity to reflect on the process and make any changes or improvements if required.

Assessing Pupils' Responses to the Task

The first column of the Assessment Criteria Grid sets, in bold, the Requirements for UICT that are covered in this task. Alongside this are the Levels of Progression (those related to the task are in bold) and the UICT Desirable Features for Exploring Programming at Levels 2 and 3. These Desirable Features have been produced as guidance for teachers to consider when observing a pupil and assigning a level to a piece of work. When coming to a holistic judgement of the pupil's level of UICT competence, teachers should ensure that these

Desirable Features are used in conjunction with the UICT Levels of Progression. Where possible teachers should incorporate elements of Exchange and Exhibit as set out in the Desirable Features.

This task may provide opportunities for pupils to work collaboratively online (Exchange) and showcase work online (Exhibit). Teachers should include these, where possible, as set out in the Desirable Features.

Assessment Criteria Grid

UICT Requirements	Level 2	Level 3
<p>Explore</p> <ul style="list-style-type: none"> access, select, interpret and research information from safe and reliable sources; investigate, make predictions and solve problems through interaction with digital tools. 	<p>Pupils can:</p> <ul style="list-style-type: none"> find, select and use information from a given digital source (explore); carry out a series of instructions using a digital device or environment (explore); 	<p>Pupils can:</p> <ul style="list-style-type: none"> research, select, edit and use information from given digital sources (explore); carry out and edit a series of instructions, make predictions and solve problems using a digital device or environment (explore);
<p>Express</p> <ul style="list-style-type: none"> create, develop, present and publish ideas and information responsibly using a range of digital media and manipulate a range of assets to produce multimedia products. 	<ul style="list-style-type: none"> create and edit text onscreen, combining images and/or sound (express); 	<ul style="list-style-type: none"> communicate and develop ideas by creating and editing text onscreen – combining this with an appropriate selection of images and/or sounds (express);
<p>Exchange</p> <ul style="list-style-type: none"> communicate safely and responsibly using a range of contemporary digital methods and tools, exchanging, sharing, collaborating and developing ideas digitally. 		<ul style="list-style-type: none"> understand that digital methods can be used to communicate and make a contribution to a supervised online activity (exchange);
<p>Evaluate</p> <ul style="list-style-type: none"> talk about, review and make improvements to work, reflecting on the process and outcome and consider the sources and resources used, including safety, reliability and acceptability. 	<ul style="list-style-type: none"> talk about how to improve their work (evaluate); and 	<ul style="list-style-type: none"> make modifications to improve their work (evaluate); and
<p>Exhibit</p> <ul style="list-style-type: none"> manage and present their stored work and showcase their learning across the curriculum, using ICT safely and responsibly. 	<ul style="list-style-type: none"> save their work (exhibit). 	<ul style="list-style-type: none"> save using file names and select work to showcase learning digitally (exhibit).

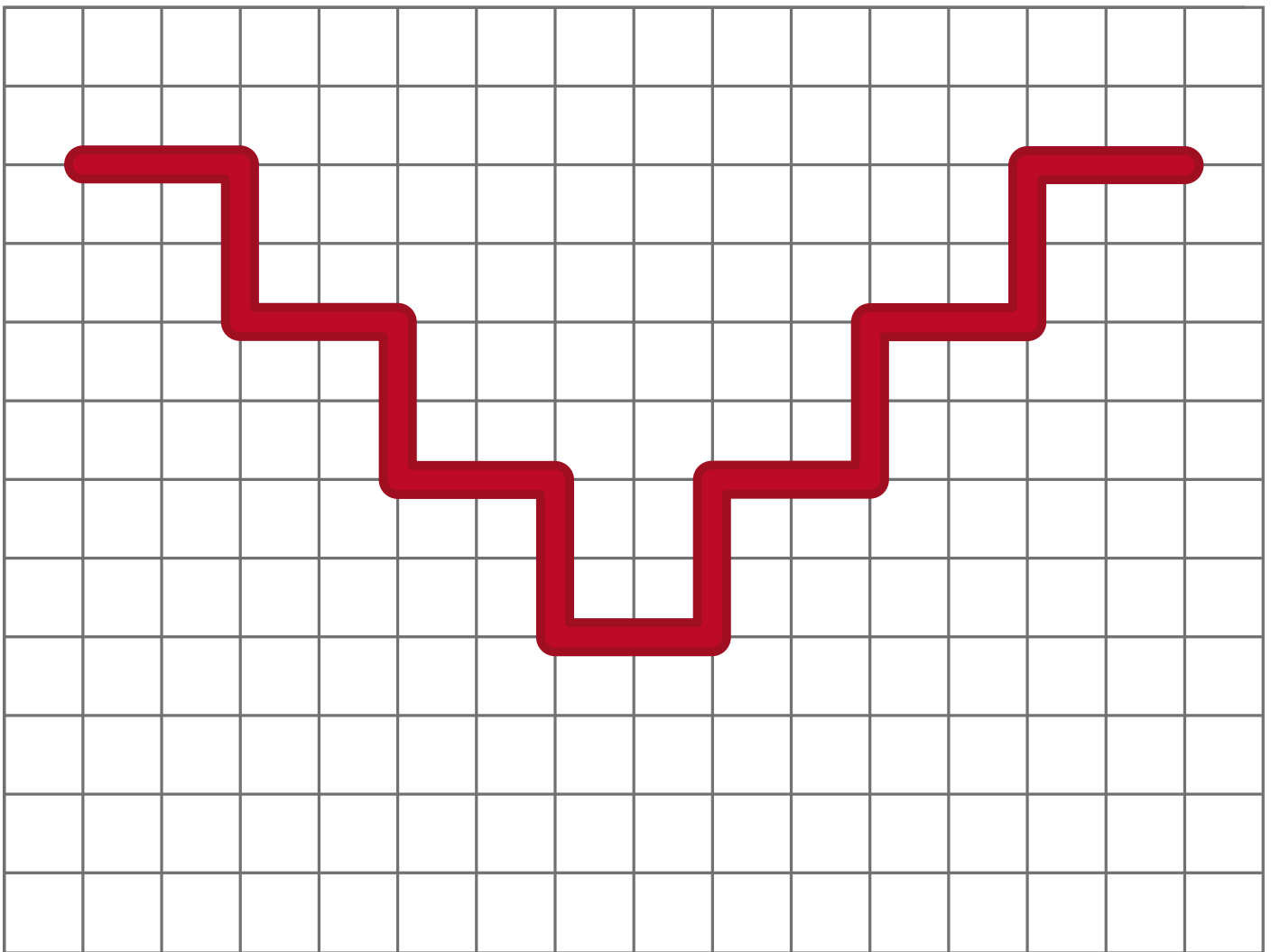
Assessment Criteria Grid

UICT Requirements	Desirable Features - Level 2 (Exploring Programming)	Desirable Features - Level 3 (Exploring Programming)
<p>Explore</p> <ul style="list-style-type: none"> access, select, interpret and research information from safe and reliable sources; investigate, make predictions and solve problems through interaction with digital tools. 	<p>Typically the pupil can:</p> <ul style="list-style-type: none"> enter commands to move or change, for example, a Bee-Bot or onscreen sprite (explore); understand the outcome of a command and select and use commands to generate a change in movement or value (explore); talk about how they caused movement and how they might do it again with different commands (evaluate); and save work (exhibit). 	<p>Typically the pupil can:</p> <ul style="list-style-type: none"> input simple sequences of commands (explore); use more efficient commands such as repeat (explore); work collaboratively online where appropriate (exchange); talk about how and why they chose commands and suggest modifications (evaluate); and save work to a specified location and give it a suitable name (exhibit).
<p>Express</p> <ul style="list-style-type: none"> create, develop, present and publish ideas and information responsibly using a range of digital media and manipulate a range of assets to produce multimedia products. 		
<p>Exchange</p> <ul style="list-style-type: none"> communicate safely and responsibly using a range of contemporary digital methods and tools, exchanging, sharing, collaborating and developing ideas digitally. 		
<p>Evaluate</p> <ul style="list-style-type: none"> talk about, review and make improvements to work, reflecting on the process and outcome and consider the sources and resources used, including safety, reliability and acceptability. 		
<p>Exhibit</p> <ul style="list-style-type: none"> manage and present their stored work and showcase their learning across the curriculum, using ICT safely and responsibly. 		

Pupils should demonstrate, when and where appropriate, knowledge and understanding of e-safety including acceptable online behaviour.

Staircase Sequence

Use Black Cat Logo at blue or green level (or another suitable program) to write the instructions needed to produce this "Staircase Sequence".



Staircase Sequence

Keep a note of your instructions.

Each square stands for 25 screen turtle lengths.

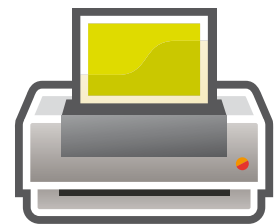
Write your instructions, step by step.

If you know how, you can include the REPEAT command in your instructions.

Try out your instructions and make changes until you are happy with your result.

Save your work and show it to someone in your class. Tell them about what you did.

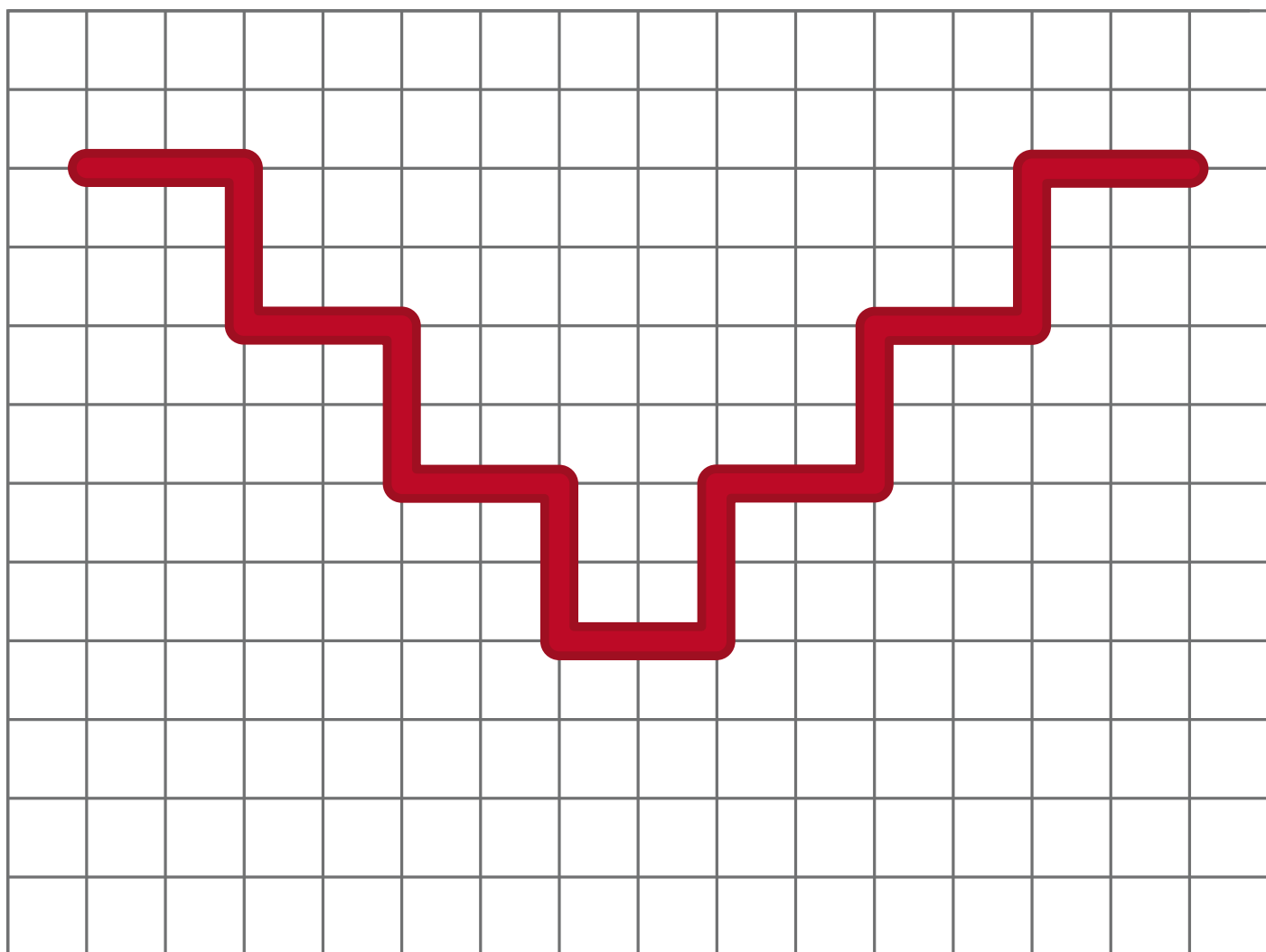
Save your instructions if you are able to.



Staircase Sequence

(using Scratch)

Use Scratch to write the instructions needed to produce this "Staircase Sequence".



Staircase Sequence

(using Scratch)

Keep a note of your instructions.

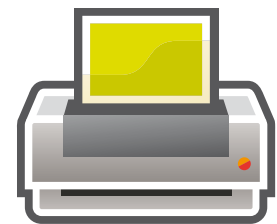
Each square stands for 20 screen turtle lengths. You do not need to draw the square pattern, only the staircase.



Write your instructions, step by step.

If you know how, you can include the REPEAT command in your instructions.

Try out your instructions and make changes until you are happy with your result.



Save your work and show it to someone in your class. Tell them about what you did.

Save your instructions if you are able to.