







1- 8 Secret Codes

Activity Page

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This is a spelling game where students program Roamer to code and decode secret messages.

Subjects	Age	Roamer Expertise	Student Grouping	Lesson Time	Availability
Computing English	Year 2 Year 1				

Description

You might think about starting the lesson by saying something like this to the children:

"Don't tell anyone this. You must promise - not even your mum and dad. We are going to train you to be a spy. Who would like to be a spy? All spies need to know how to send secret messages. Would you like to know how to do that? Some people once made up secret codes using a machine called Enigma. We do not have one of those but we have Roamer shall we try to use it to make up secret messages?"

This Activity uses the Multi-Activity Mat (or you can adapt the Grid Mat). A pair of students writes an algorithm that will tell Roamer to go around the mat and gather letters. The letters Roamer will spell out the secret word on the Multi-Activity Mat. They pass the algorithm to another pair of students. These students use the algorithm to write a program. They pass the program to the third pair of pupils, who test the program and decode the word. Organise your students in a group of six. Split the group into [Buddy Pairs](#); this means that each pair creates an algorithm, writes and tests a program.



Objectives

Students have the chance to:

1. Progress their understanding of algorithms
2. Understand the connection between algorithms to programs
3. Write and test programs
4. Practise spelling simple words

Secondary Objectives

Students can nurture their:

1. Ability to cooperate with others
2. Confidence
3. Communication Skills

Vocabulary

1. Algorithm
2. Code
3. Program
4. Code Reading

KS1 Computing Pack

[Index to KS1 Computing Pack Activities.](#)



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Lesson Plan and Assessment

Preparation

1. Set Up Mats

1. Set up Multi-Activity Mats
2. Alternatively, set up Clear Grid Mat



Activity

1. Introduce the Activity

1. Tell the spy story.
2. Emphasis the need for secrecy
3. Talk about the importance of communication



2. Start the Activity

1. Split the students into groups of 6.
2. Organise **Buddy Pairs** within the groups.
3. Explain they have to spell a word.
 - a. How many letters.
 - b. Other rules.
4. Discuss algorithms.
 - a. What is an algorithm?
 - b. How would you write an algorithm to help Roamer to spell a word?
5. Work with students to create a Learning Intention about algorithms.
6. Each Buddy Pair writes an algorithm.



3. Write the Program

1. Ask the Buddy Pairs to swap algorithms.
2. Discuss the difference between an algorithm and a program.
3. Set up Learning Intention about writing a program.
4. Each Buddy Pair writes a program for the algorithm.



4. Test the Coded Message

1. Ask the Buddy Pairs to swap programs
2. Discuss how they will check the program
3. Set up the Learning Intention about testing the program
4. Program Roamer.
5. Test the program and write down the coded message.





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Lesson Plan and Assessment

5. Review the Answer

1. Give the coded message back to the original buddy pair
2. Did they get the answer right?



Assessment

1. Class Discussion

1. Ask for a show of hands: "Who got the right answer?"
 - a. Note how many
2. Ask them open questions and prompt a discussion
 - a. What is an algorithm
 - b. What is a program
 - c. What is the difference between the two
3. Listen to the responses
4. Had their understanding improved?
5. Make notes about interesting responses
6. Complete the Evaluation forms





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Teacher's Notes

Subject Comments

Students will:

1. Have a problem to solve
2. Write an algorithm to solve the problem
3. Use Roamer instructions to write a program for the algorithm
4. Turn the program into code by entering it into Roamer
5. Test the code – does Roamer solve the problem?

The students will display all the basic skills of a computer programmer. Of course, they will come across more sophisticated programming languages, but the step-by-step actions are never much more complicated.

Prior Knowledge

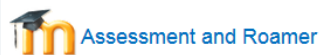
Students should:

1. Have a basic understanding of algorithms
2. Know how to write basic Roamer programs

Practical Tips

Take the opportunity to use this activity to strengthen your student's spelling. Impose rules to suit your student's needs such as 5 letters words or words that use particular vowels.

Technical Help



Assessment and Roamer

Science of Learning

You don't always need to clarify the Learning Intentions at the start of a lesson. First engage the students, then ask them what they think they're learning when they're in a position to give you an answer. Students repeating a pre-written Learning Intention has little value. It is good practice for the pupils become aware of what they are learning. The best way of doing that is to ask them. This will create a discussion which gives you the chance to help them clarify their thoughts. The point of Assessment for Learning is for you to know how the lesson is going. Do you need to adjust anything to make sure the students get the best out of the opportunity? They may have gone in an unexpected direction. It is a matter of your professional judgement whether you support their inspiration or bring them back to task.

References and Useful Links



Catlin, D. (2016) Learning Intentions and Educational Robots, Constructionism 2016, Bangkok, Thailand.



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Resources

Resources for Roamer Activities

This page lists the resources needed for this Roamer Activity. Note that you will access some resources by following the hyperlink. Others you will find on the Activity pdf.



CD Users: Click on Link icon to access links.

Roamer Products

[1520-402 Infant K-1 Roamer](#) (you will need 5 Roamers if you do this as a class activity)

General Accessories

[1522-108 Roamer Power Pack](#)

[1522-110 Intelligent Charger](#)

Mats

[1526-102 Multi-Activity Mat](#) We recommend you use the Clear Protective Mat with this.

[1526-115 Clear Protective Mat](#)

[1526-103 Clear Grid Mat](#) You can use this as an alternative to the above two, but you will need to add the letters.