

Play Code Learn

DINOSAUR STEPS



Lesson Two: Sequential Instructions & Algorithms

Lesson Two Learning Outcomes

Learning Intention:

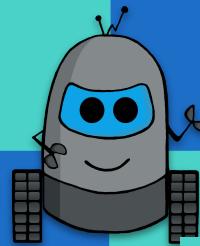
...how to create a successful algorithm.

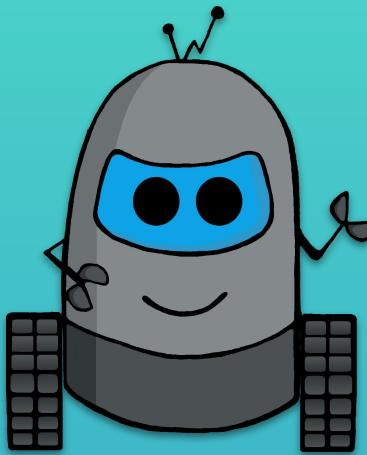
To understand the impact of algorithms in our lives.

To learn how to write clear and precise instructions.

To explore the concepts of algorithms.

To practise writing successful algorithms.





Logical Sequential Instructions

Discussion: Everyday activities

Every day you have activities that need to be done in a certain order - or it will not work!

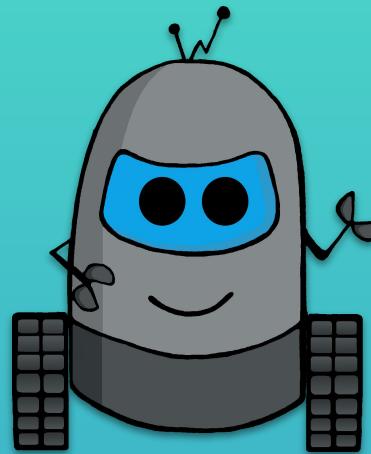
For example - **how did you get dressed this morning?**

In which order did you put your clothes on?

*Is anyone sitting with their underpants over the top of their other clothes?
(like a superhero!)*

What other everyday activities can you think of that need to be done in a certain order?



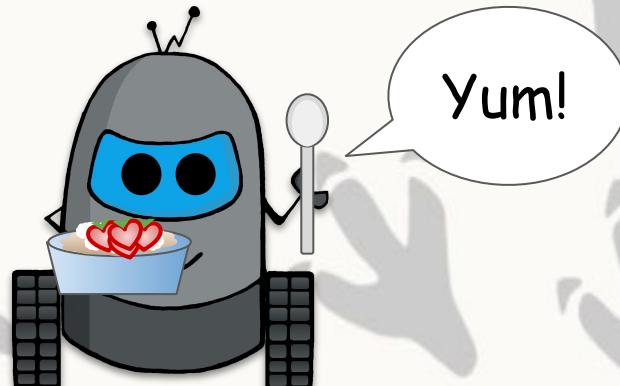
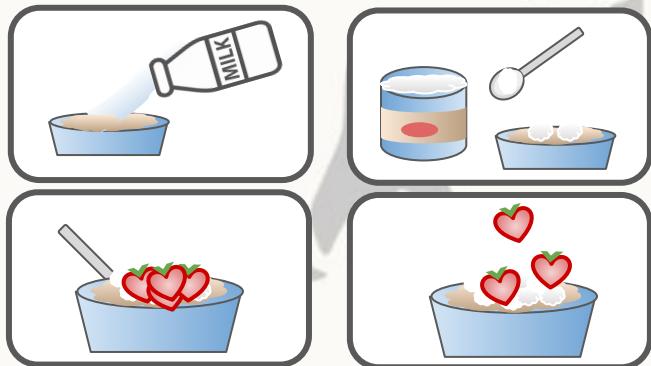


Sequential Instructions & Algorithms

Sequential Instructions

Activity: Step by step instructions - beginner

Explorer Ed needs to get ready for the day and eat a healthy breakfast.



Can you give Explorer Ed instructions by putting the cards in the correct order for making the breakfast?

Sequential Instructions

Activity: Step by step instructions – advanced

Your teacher is getting hungry and would like a snack to get them through the rest of the day!

They have these ingredients and tools:

- Bread
- Knife
- Plate
- Butter
- Jam



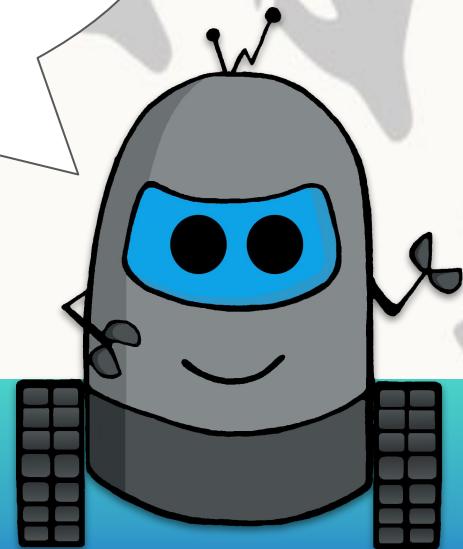
Can you write step by step instructions for your teacher to follow to be able to make a jam sandwich?

Sequential Instructions

Discussion: Step by step instructions

What did you find out when writing step by step instructions?

What did you do when you made a mistake?

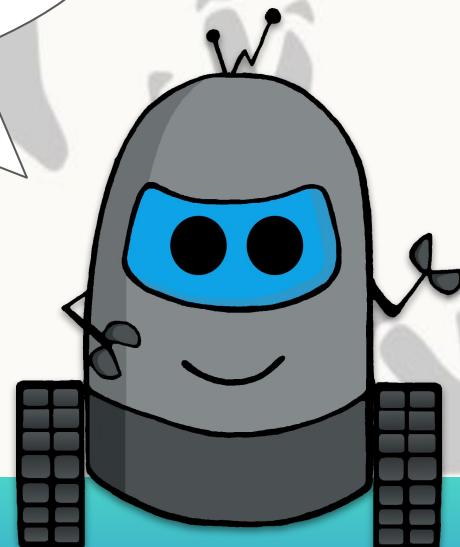


Sequential Instructions

Discussion: Step by step instructions

*Did you know that
instructions that are
given in a step by step
order are known as a
sequence?*

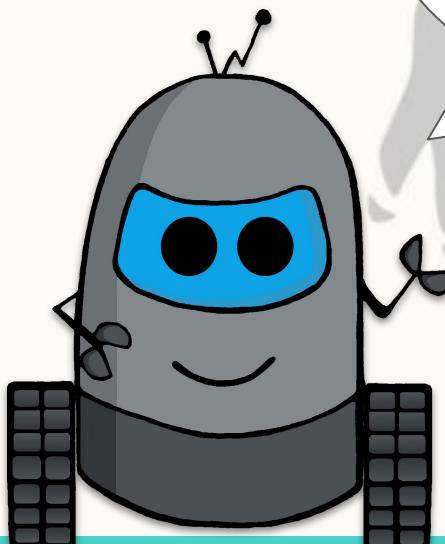
They are
sequential
instructions!



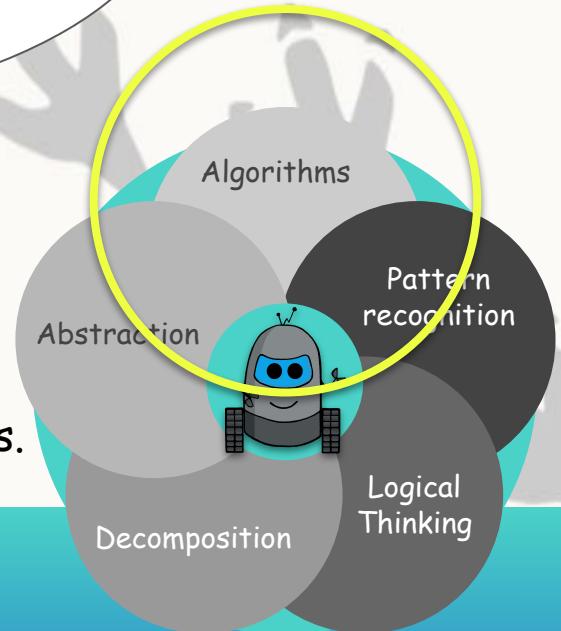
Sequential Instructions

Discussion: Step by step instructions

*In computational thinking, a list of sequential instructions is known as an **algorithm**.*



Computational thinking concepts.



Play Code Learn

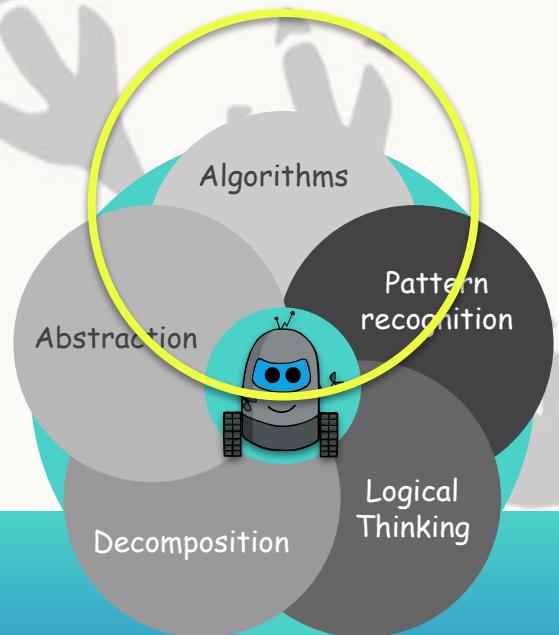
Sequential Instructions

Discussion: What are algorithms?

When a computer programmer wants to create a new computer program, they start by writing an **algorithm**.

An **algorithm** is a written form of precise, logical, step by step instructions.

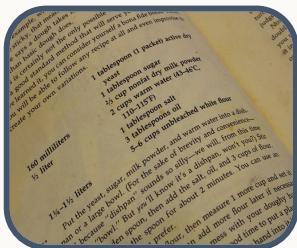
When you wrote your instructions for Explorer Ed or the teacher you were writing an **algorithm**.



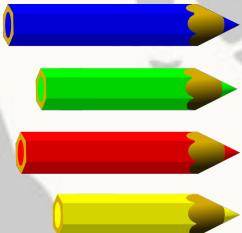
Sequential Instructions

Discussion: What are algorithms?

Here are some more examples of **algorithms** that you may use in the world around you:



recipe

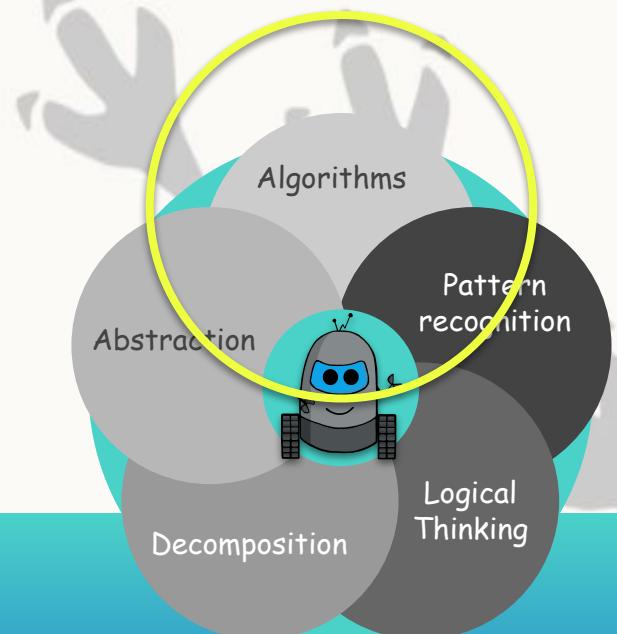


sorting pencils based on length

$$\begin{array}{r} 395 \\ + 123 \\ \hline 518 \end{array}$$

adding up numbers

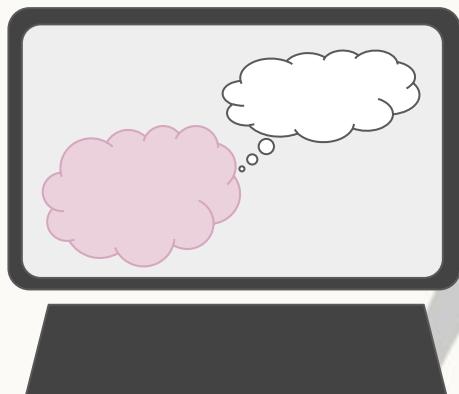
Can you think of any more **algorithms** in everyday life?



Sequential Instructions

Discussion: Why are clear algorithms important?

A computer only follows the instructions given to it.

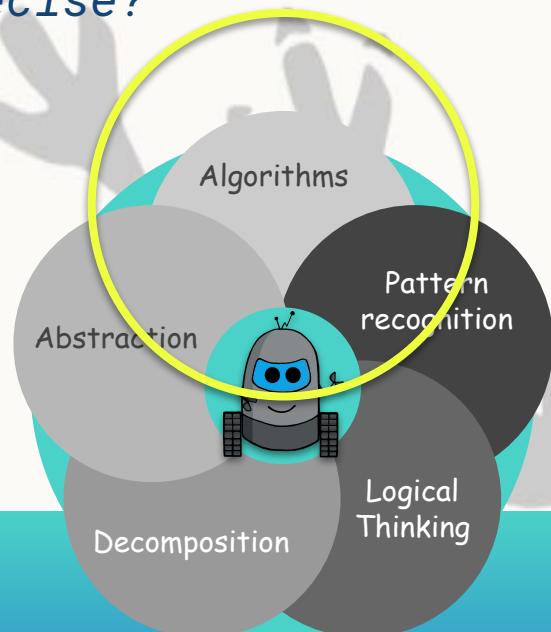


Why do you think the instructions need to be clear and precise?

Remember computers cannot think, so programmers need to write logical clear instructions that will be followed.
Clear instructions reduce errors.

Play Code Learn

Play Code Learn: Dinosaur Steps



Sequential Instructions

Activity: Play Code Learn: Dinosaur Steps

You are now going to use the Dinosaur Steps kit to create **algorithms** for Explorer Ed to follow.



Follow the *flashcards* or the *instruction booklet* to learn how to use the kit to write **algorithms**.

Sequential Instructions

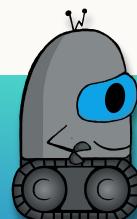
Activity: Play Code Learn: Dinosaur Steps

Different Activities with the Dinosaur Steps kit:

- Beginner - Use the arrow cards to write an **algorithm** to get Explorer Ed *from the start flag to the finish flag*.
- Intermediate - Use the arrow cards to write an **algorithm** to get Explorer Ed *from the start flag to the finish flag, visiting at least one dinosaur along the way*.
- Advanced - Use the arrow cards to write an **algorithm** to get Explorer Ed *from the start flag to the finish flag, visiting 3+ dinosaurs along the way*.



Play Code Learn: Dinosaur Steps



Sequential Instructions

Discussion: Play Code Learn: Dinosaur Steps

Think about writing **algorithms** with the Dinosaur Steps kit.

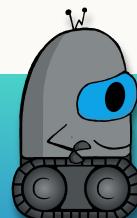
- Do you have to write words to make an **algorithm**?
- Why is it important to give clear instructions?
- Did you have any problems when writing an **algorithm**?
- How did you solve the problems?

Did you notice that there was more than one way to solve the problems?

To make **algorithms** better the next step is to make them more **efficient** (use the fastest successful route!).



Play Code Learn: Dinosaur Steps



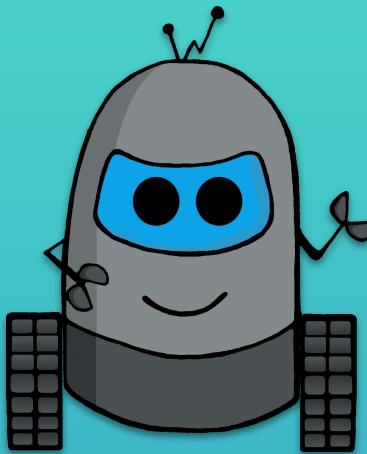
Extension Activity



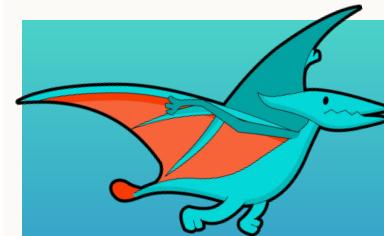
More challenges in
the Dinosaur Steps
kit.

Practice makes
perfect!

Can you work through
the ten lesson
challenges to practise
writing clear
algorithms?



Reflection

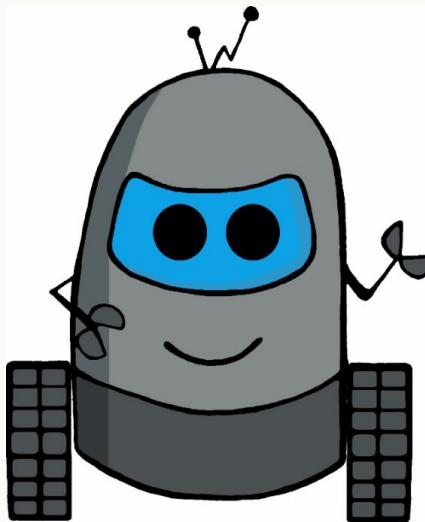


Reflection: Lesson Two

Learning Intention:

...how to create a successful algorithm.

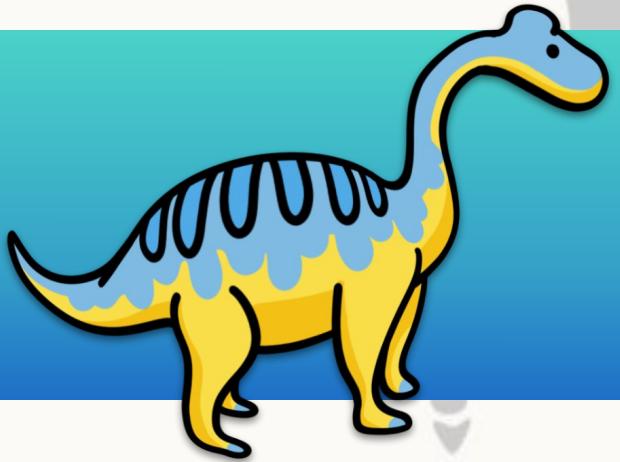
How do you feel about today's lesson?



What were the key takeaways from the lesson today?

What would you like to learn more about?

Play Code Learn



Thank you!