Transforming tasks | WORKSHOP 04



## GOAL - Getting the students doing the thinking in Digital Technology

## Transforming tasks strategy: From procedure to problem solving

## Before After Reflection: Why and how? Technique Students identify the Program your Bee-Bot so it goes from the hive in A1 to the flower Move your Bee-Bot on this map. 'problem What challenge do you want to try? to solve' Record the commands in the space Record your challenge and the commands you use EE Present a provocation provided. in the space provided. and ask students algorithm. to determine the problem to solve. a problem Provide insufficient Move your Bee-Bot from the hive to the flower. Give a sequence of steps to a friend, so that information Follow the procedure. Make a record of all your commands. they can move the Bee-Bot safely from the the Bee-Bot through the hazards on a map? hive to the flower.

at first

Give a perplexing problem and slowly provide information as needed.

- Start at the hive. Move down to avoid the bird.
- Avoid the insect spray. Avoid the lizard.
- Fly left over the hills.
- Go to the fountain and pause for a drink.
- Move left and down to the flower.

Give the commands you have recorded to someone else to test.

The Bee-Bot can be programmed to move different ways.

steps - at first Provide prompts and support to scaffold the

Include some

Give additional

information that

is not required

to do the task.

irrelevant

information

Don't give any of the

means move forward 15 cm

means turn 90 degrees left

× means clear

means pause

Follow the instructions on the Bee-Bot program cards to make the Bee-Bot follow the lines of these different shapes, without leaving

Why isn't there a card for the triangle? Did you notice that the Bee-Bot cannot move on diagonal lines?

Can you make the Bee-Bot follow the lines of these different shapes, without leaving the path? What do you notice?

Play with your Bee-Bot to see what it can do.

Be careful. Make sure they avoid the hazards.

What questions do you have?

Record your programmed movements using symbols. The control symbols on the back of the Bee-Bot might help.

The Bee-Bot can be programmed to move different ways.

What other symbols will you need?

WHY would you have students create their own challenges for the Bee-Bots?

To develop creative thinking provoke the development of skills in computational thinking, including; decomposing the problem, finding patterns, using abstraction and creating an

HOW does this develop powerful / expert learners Students learn to think flexibly and creatively in order to solve

WHY would you have students develop a safe route for

Students think creatively to develop skills in organising their thinking in a multistep problem, using simple programming language and spatial terms.

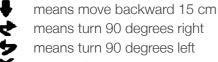
HOW does this develop powerful / expert learners Students learn to draw conclusions and make inferences while creating a safe path for their Bee-Bot.

WHY would you have students experiment with different pathways for their Bee-Bot?

To develop skills in generating and evaluating a range of possible solutions for a problem.

HOW does this develop powerful / expert learners? Students learn to approach problems in different ways and use trial and error in order to think logically and apply what they know in different situations.

## learning as needed.



The Bee-Bot can be programmed to move forward and back along the street.

- The Bee-Bot can be made to turn in a circle to go back along the road.
- Notice that there are two side roads that it can turn into, as well as 'entering' the houses.
- The houses are numbered.
- Record the path that makes the BeeBot visit the odd numbered houses - 1,3,5,7,9.

Use the command symbols to record your path.

The Bee-Bot can be programmed to move forward and back along the street.

- The Bee-Bot can be made to turn in a circle to go back along the road.
- There are 10 spaces on the road.
- There are two side roads that it can turn into. as well as 'entering' the houses.
- The houses are numbered.
- The blue fairy lives in the toadstool.

Record the path that makes the Bee-Bot visit the odd numbered houses - i 1,3,5,7,9.

Use the command symbols to record your path.



Dimensions = 45 cm by 120cm

WHY would you have students programs a Bee-Bot to move through a gridded Street Map adding irrelevant information.

Develop skills in representing a sequence of steps to solve problems.

HOW does this develop powerful / expert learners.

Students learn to use abstraction by disregarding the information they do not need.