

# Barefoot

Recommended for  
**ages 7-11**

## 2D Shape Drawings - Using logical reasoning to detect and correct errors in algorithms

Principal partners



Computing at School



@BarefootComp



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[barefootcomputing.org](http://barefootcomputing.org)

# Today we are learning about...

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## Logical reasoning and algorithms

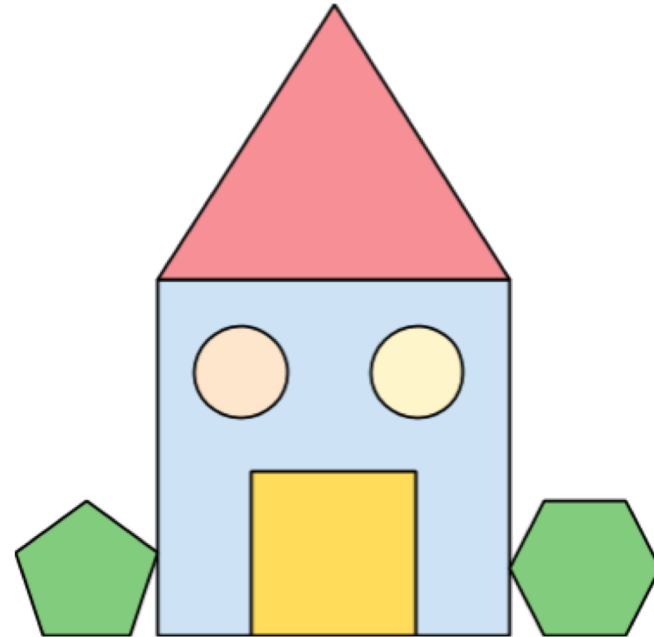
- I can use logical reasoning to detect and correct errors in an algorithm

# Algorithm for drawing a house

## Algorithm

1. Draw a blue square in the centre of your page
2. Draw an orange equilateral triangle with one edge aligned with the top of the square
3. Draw two blue triangles inside the square
4. Draw a yellow square with sides half the length of the first square, inside the first square
5. Draw a green regular hexagon to the left of the square. The bottom of this shape should be inline with the bottom of the square
6. Draw a purple regular pentagon to the right of the square

## Desired outcome of algorithm



# Main task

## Task 1 (10 mins)


- Fill in a simple drawing made from 2D shapes in the right hand part of the table and write the algorithm for this drawing in the left hand box
- Include 3 deliberate mistakes in your algorithm

## Task 2 (10 mins)

- Sketch out each step of your partners algorithm and use logical reasoning to detect and correct the errors (**Identify, Think, Change**)
- Make changes to the algorithm using a coloured pencil

## Extension



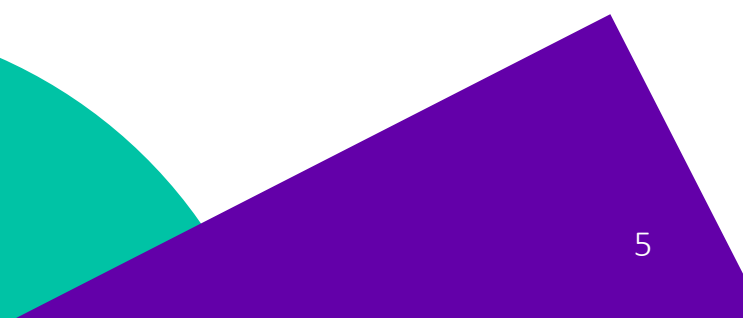
- Can you spot any patterns in the information needed in each step of the algorithm?

Algorithm designer:	Algorithm debugged by:
Learning objective: <b>I can</b> use logical reasoning to detect and correct errors in algorithms.	
Write your algorithm for this 2D shape picture in this box. (Remember to include 3 errors in your algorithm)	Draw your 2D shape picture in the box below.
<p>draw a small orange rectangle at the top of the page</p> <p>then add a green kite underneath</p> <p>next add a hexagon as a body under this</p> <p>add two wide blue trapeziums under the hexagon</p> <p>add a narrow blue kite to the right top of the hexagon</p> <p>add a narrow blue kite to the left top of the hexagon</p>	

# Plenary



## Feedback to your partner

- Take turns to feedback to your partner the errors you found in their algorithm. For each error, explain:
    - ✓ What error you identified
    - ✓ How you knew it was an error
    - ✓ How you have corrected the error
    - ✓ How you know your correction will work
    - ✓ Did your partner find all the errors you'd purposefully made?
  - Did they detect and correct any unintentional errors?
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**Barefoot**

