

Assessing students' work

The following descriptions indicate typical levels of performance. After each description is an example of some work at this level.

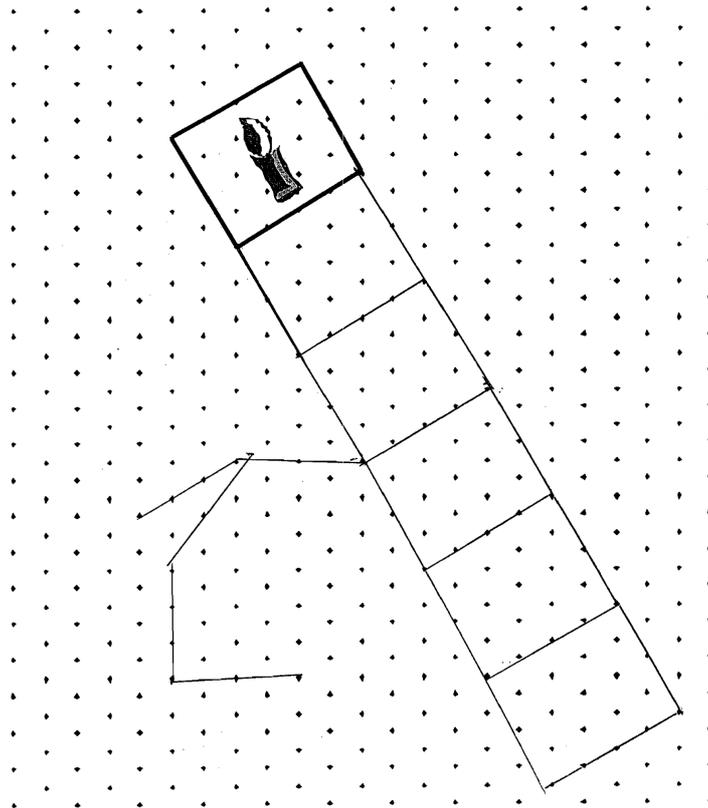
Little progress

- **Representing:** Represents part of a 3D object in 2D.
- **Analysing:** Draws some faces correctly, but does not join them up appropriately.
- **Interpreting:** Cannot interpret own drawing in terms of 3D box.
- **Communicating and reflecting:** Clear drawing made, with inaccuracies and/or omissions.

Attempts to draw the correct position of the hexagonal base..

Sample response: Tim

Tim appears to understand what he has to do, and has tried to draw the 6 sides of the box so that they will fold into a ring. These are in the wrong positions, however. He appears to have given up when trying to draw a hexagonal top.



Questions for Tim:

Tim could be encouraged to improve his response by asking the following questions:

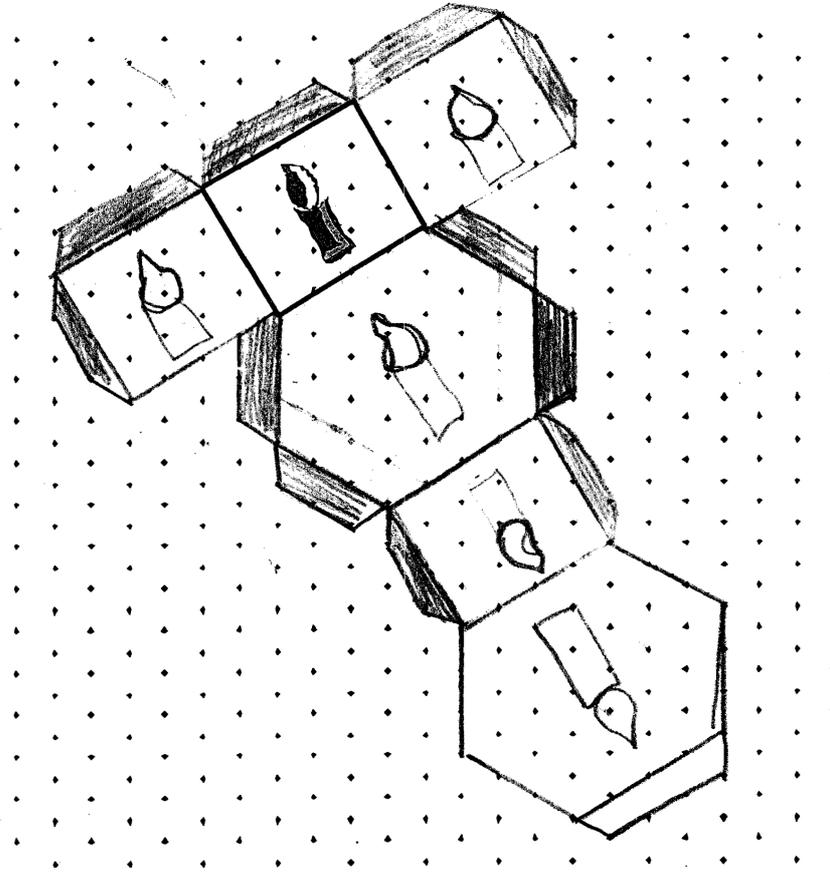
- *What would your box look like with the faces you have drawn?*
- *Which side of the rectangle should the hexagon base be connected to?*
- *How can you reorganise your design to more closely match the box required?*

Some progress

- **Representing:** Represents most of a 3D object in 2D.
- **Analysing:** Draws most faces correctly, joins some up correctly, but there are several omissions and inaccuracies.
- **Interpreting:** After drawing the net, tries to imagine it folded up again. Draws candles and glue flaps but in wrong orientations/ positions.
- **Communicating and reflecting:** Clearly draws most of the faces of the box, but with inaccuracies and/or omissions.

Sample response: Shonah

Shonah has drawn only four of the rectangular sides, but these are the correct size and position. She has also tried to draw the hexagonal base and top in their correct positions, but these are not regular. She has drawn most of the candles in their correct orientations (but not on the lid!). Most of her flaps are correct, but there is a flap where the thumb hole should be.



Questions for Shonah:

Shonah could be encouraged to improve her response by asking the following questions:

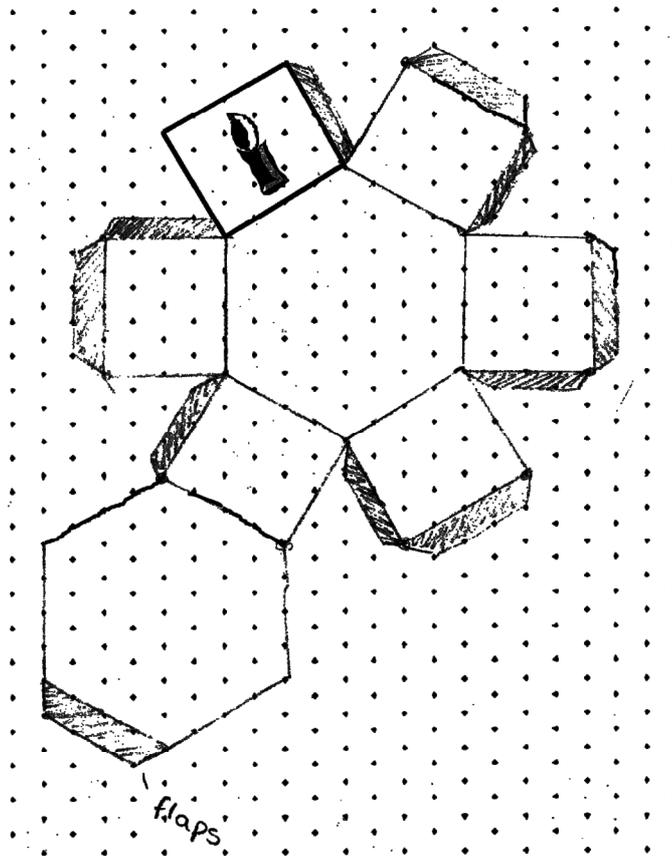
- *The hexagon that forms the base should be regular. How can you adjust the shape of your hexagons to achieve this?*
- *How many rectangular sides must the box have?*
- *You have been asked to provide a thumb hole. Where would this go?*

Substantial progress

- **Representing:** Represents a 3D object in 2D.
- **Analysing:** Draws a net accurately, including the correct number of faces, joined appropriately.
- **Interpreting:** After drawing the net, imagines it folded up again. Locates some glue flaps and lid flaps, but may not distinguish them. Candle picture may be omitted or in wrong orientation on some faces.
- **Communicating and reflecting:** Clearly draws and labels the box design.

Sample response: Colin

Colin has correctly drawn the base and lid hexagons, and all the rectangular sides of the box in their correct orientations. The candles have not been shown. All but one of the flaps are in the correct place, but Colin has not distinguished between those that are to be glued and those that are not.



Questions for Colin:

Colin could be encouraged to improve his response by asking the following questions:

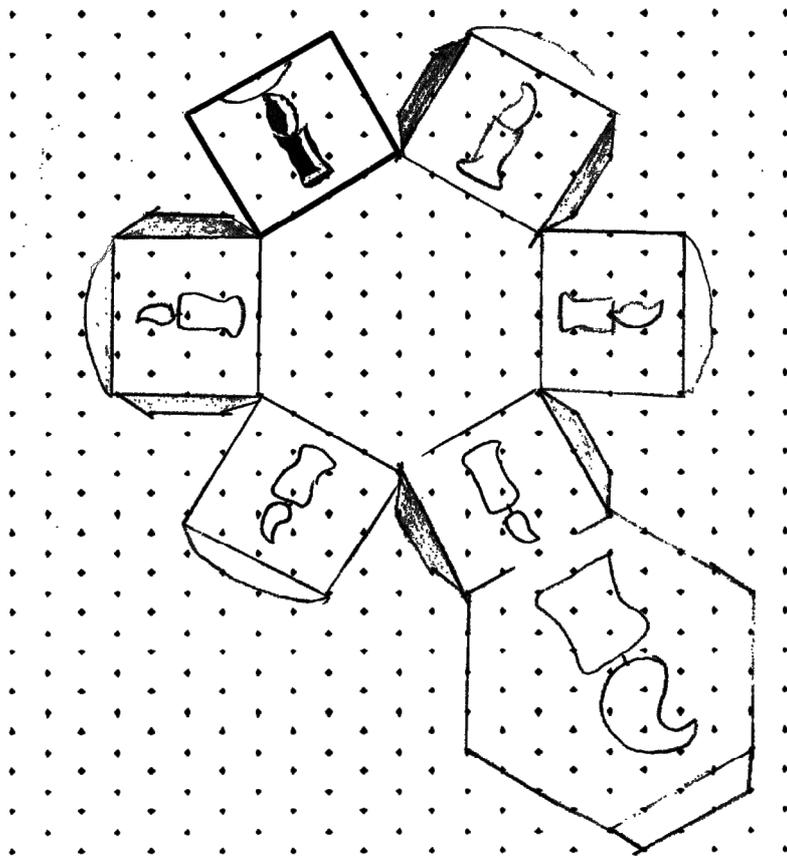
- *In which direction would you draw the candles to ensure they will be pointing in the correct direction on the box?*
- *You have drawn some flaps. What are these to be used for? Which are which?*
- *Can you complete the box to satisfy all the specifications?*

Task accomplished

- **Representing:** Represents a 3D object in 2D.
- **Analysing:** Draws a net accurately, including the correct number of faces, joined appropriately.
- **Interpreting:** Locates some glue flaps and lid flaps, and distinguishes between them. Ensures that these do not interfere with one another. Candle picture in correct orientation on almost all faces.
- **Communicating and reflecting:** The box design is clearly drawn and labelled.

Sample response: Beth

This is an almost completely correct solution, showing the faces and flaps the correct size and orientation. The only error is that the flame on the candle on the lid does not point towards the hinge.



Probing questions for Beth:

Beth could be encouraged to improve her response by asking the following probing questions:

- *Can you imagine the box assembled from your net? Are all the sides present and the candles pointing in the correct direction?*