

What is a constellation?



You are going to answer the following research question:

What does a constellation look like when seen from different sides?

1 *Make a constellation*

1 Collect a container with the material you need from your teacher.

2 Examine the items in the container. Take out the long piece of cardboard.

3 Draw a straight line two centimetres from the short edge of the cardboard.

Write a 1 under this line as shown in figure 1.

4 You now have to divide the rest of the cardboard into six equal parts as shown

in figure 1. Measure the length of the cardboard from line 1.

The length of the cardboard is _____ centimetres.

5 Divide this figure by six. Write your answer here:

_____ ÷ 6 = _____ centimetres.

6 Starting at line 1, measure the number of centimetres you calculated in

step 5. Draw a straight line here. Write a 2 under this line.

7 Repeat step 6 until you have drawn six lines in total.

The seventh line is the top of the cardboard.

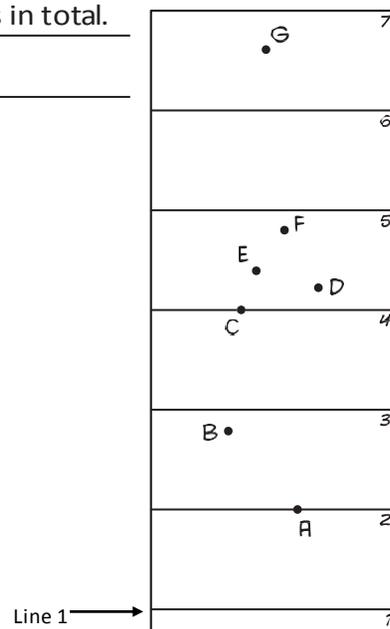


Figure 1

- 8 Next you will make the eyehole. Take the square piece of cardboard (20*20 cm). Draw a cross exactly in the middle of the card. Use the compass to draw a circle with a diameter of 1 centimetre on this cross. Ask your teacher to cut out this circle for you before doing step 9. You can start step 10 while waiting for your teacher.
- 9 Glue the square cardboard to the long piece of cardboard along line 1 as shown in the drawing below (figure 2).
- 10 Now you are going to make a three-dimensional model of the constellation Orion on your board. The drawing below (figure 2) shows exactly where each star forming Orion should be. Each star has been given a letter from A to G. Stars A and C, are positioned exactly on a line (lines 2 and 4). Stars D, E, F are located in between lines 4 and 5. Use the pencil to mark the letters A to G on the board using figure 2 as a guide.

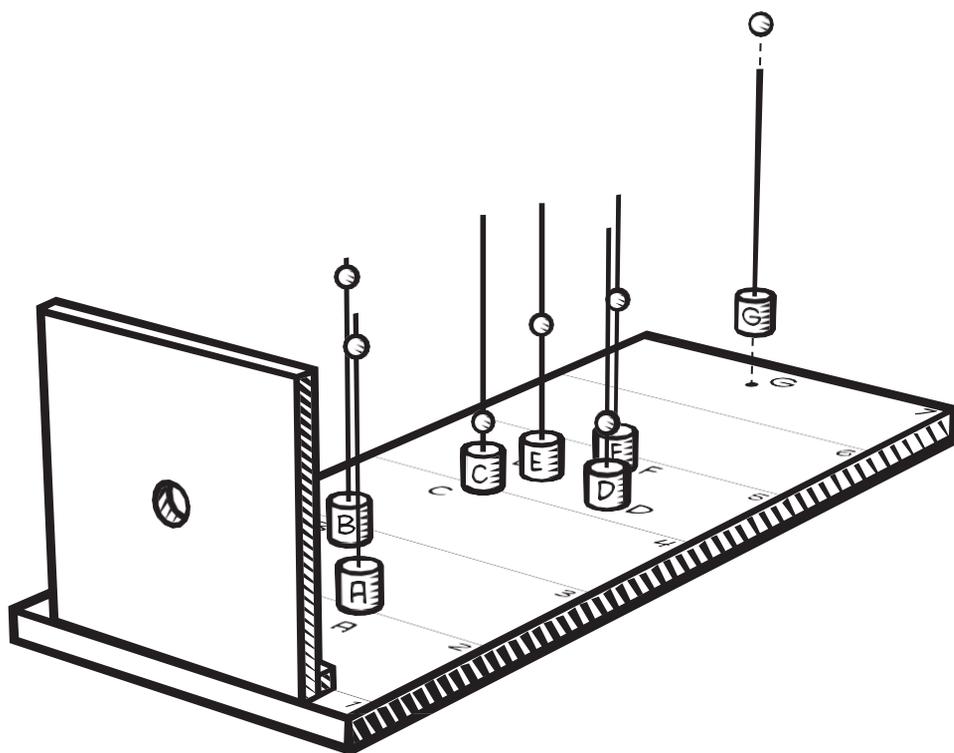


Figure 2

- 11 Cut four corks in half and use the waterproof marker to label each piece with a letter from A to G.
- 12 Take the 7 wooden skewers and stick one in each of the lettered corks.
- 13 Take the glow-in-the-dark modelling clay and roll seven small balls about the size of a pea. Slide one ball onto each skewer. Each ball represents a star.
- 14 Place the corks over the corresponding letters on the board. Figure 3 shows how high each ball needs to be on the skewer. Ball A should be very near the top of the skewer. Ball B is also high. Balls C and D should be near the bottom of the skewer. Balls E, F, and G should be almost halfway down the skewer.
- 15 Look through the eyehole in your cardboard square to see if the stars are in the correct place. The constellation should look the same as in the drawing.

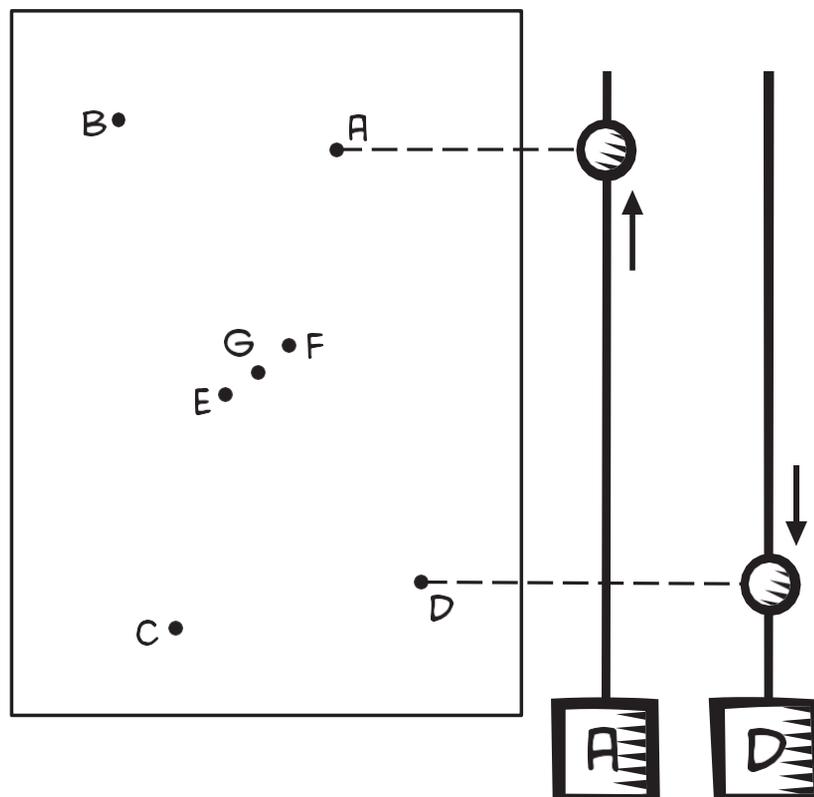


Figure 3

16 Does your constellation look the same? If not, go through steps 10 to 14 again. Other reasons why your constellation doesn't look the same may be:

- the balls representing the stars are too large
- the balls are not at the correct height on the skewers
- the hole you are looking through is too small, so you cannot see the whole constellation

2 *Not in the same plane*



You have now made a three-dimensional model of the constellation Orion. Look through the eyehole. In the box below, draw what your constellation looks like.

draw what
you see
HERE



In the box below, draw what your constellation looks like from another side. Does it look the same as your first drawing?

The Orion constellation

