



Living in the Milky Way

1 Further and further away



Read this e-mail sent by a researcher.

HELP !

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Signature:

Dear student,

My research team has spent a long time gathering information about the Milky Way. This research is so complicated that we need your help. We still need to find the answers to some important questions. Do you think you could help us? The questions are:

- a. What does the Milky Way look like?
.....
- b. Whereabouts in the Milky Way is our solar system?
.....
- c. Why can't we see the whole Milky Way from Earth?
.....
- d. Is Earth large or small compared with the universe?
.....
- d. Is the Milky Way large or small compared with the universe?
.....
- f. What is the Milky Way made from?
.....

Thank you very much for your help!
This means that we will not take so long to complete our research.

Prof. F.M.C. Laarhoff

2 Make a Milky Way



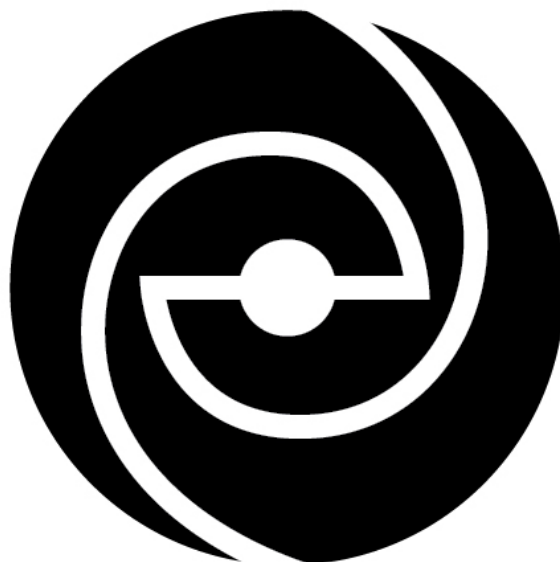
You are going to make a model of the Milky Way.

What do you need?

- black card
- cotton wool
- drawing compass
- glue
- pencil
- red clay
- scissors
- cocktail sticks
- red and white paint
- fishing line
- brushes

What do you need to do?

- 1 Set your compass points to a distance of 10cm. This is the radius of your circle.
- 2 Use the compass to draw a circle on the black card. Cut out the circle. In real life this circle has a diameter of 946,052,800,000,000,000 kilometres!
- 3 Use white paint to paint the circle of the Milky Way. Look carefully at the drawing below before you start painting. Make sure that the spiral turns left; that is anticlockwise.

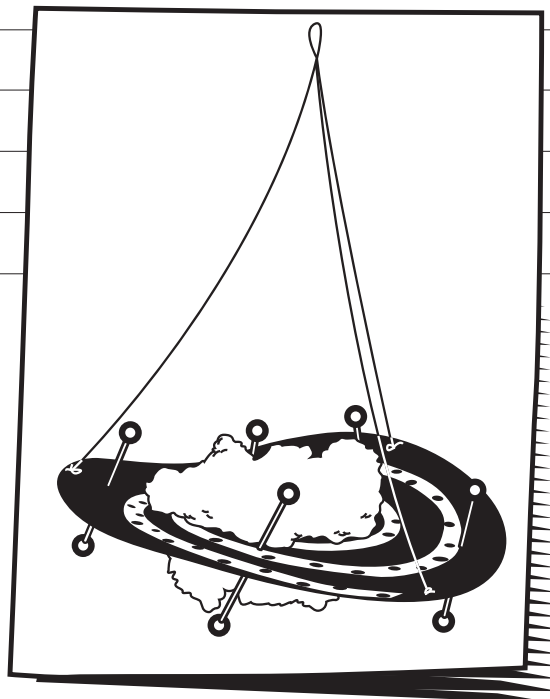


- 4 Use red paint to paint dots on your Milky Way. These dots are groups of stars. Use a pencil to draw a cross in the outermost ring of your Milky Way. This shows the position of our solar system!
- 5 Wait for the paint to dry. When the paint is dry, turn over the disc.
- 6 Now paint a mirror image of the Milky Way on this side using the white paint. Look carefully at the drawing again to see how you should paint.
- 7 Use the red paint to paint some more dots on this side to represent solar systems. Put a cross in the same position as the one on the other side to show where our solar system is. Wait for the paint to dry.
- 8 Use the red clay to make 10 small balls, about the size of a pea. Push a ball on one end of five cocktail sticks. Prick the cocktail sticks through the card. Attach the remaining five balls onto the other ends of the cocktail sticks. These balls of clay represent star clusters (nebulae).
- 9 Use the cotton wool to make two flattened balls, each 7 cm wide. Use glue to paste these in the centre of both sides of the black card.
- 10 Ask your teacher to make three holes in your Milky Way model. Thread fishing line through the holes and tie it securely.

Tip. Use the compass to prick holes in the card first.

Tip. Apply glue to the card where you want to paste the cotton wool.

Your Milky Way
is ready to be
hung up!



3 What do you know about the Milky Way?



Use your model Milky Way and the film you watched to answer the questions in the e-mail. Write your answers in the space provided at Task 1.
