Send your message via satellite!

36

Looking at the Earth

time
50 minutes

learning outcomes
To:
- learn that messages are sent via satellite in the form of zeros and ones

end product
- a drawing converted into 0s and 1s (code)

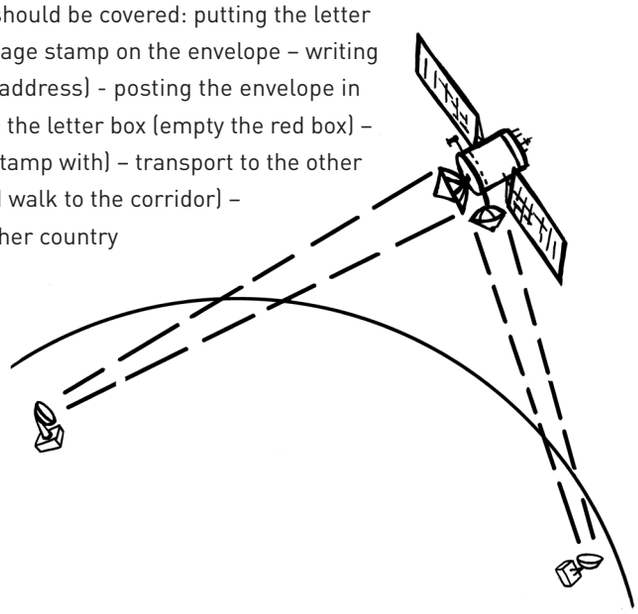
materials needed
- A5 squared paper
- A4 paper
- scissors
- envelope
- postage stamp
- stamp
- post bag
- a box with a slit opening

Preparation

For the activity **Sending a letter** you will need en envelope, a postage stamp, a stamp, and a post bag. Make a red box with a slit opening; this will be the letter box.
For the activity **What is your message?** make 48 copies of the worksheet.

Sending a letter 20 min.

Sit in a circle with the children. Together make a drawing for a friend who lives in another country. Give the drawing to one of the children. Ask him or her what needs to happen for the drawing to reach the friend. Pass the drawing to the next child. Ask them what needs to happen next. Go through all the steps in the process of posting a letter. The following steps should be covered: putting the letter or drawing into an envelope – sticking a postage stamp on the envelope – writing the address on the envelope (choose a real address) - posting the envelope in the letter box (this is the red box) – emptying the letter box (empty the red box) – stamping the letter (give a child a stamp to stamp with) – transport to the other town or city (get a child to take the letter and walk to the corridor) – sorting by the postman – transport to the other country (ask the child to return to the classroom) – the postman delivers the letter (ask a child to give the letter to another child).



Explain that it is possible to send other things, such as photographs. Take a photo in the class using a digital camera. Ask if anyone knows how you can send this photograph. Have they ever sent a digital photograph by e-mail? Explain that satellites can also send photographs. A satellite is a device that has been sent into space. Satellites orbit the Earth and can take photographs and films, among other things. The photographs made by the satellite are sent to computers on Earth. Of course this cannot be done in the same way as sending a drawing by post. So how do they do it?

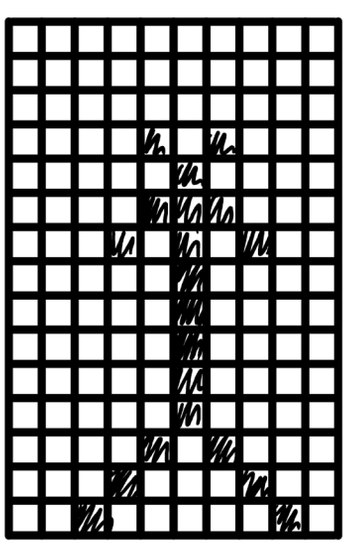
The children investigate how a satellite sends a message.

What is your message? 30 min.

Organise the children into pairs. The children complete Task 1 on the worksheet. Explain that they should make a drawing in the first rectangle by colouring in some of the squares and leaving other squares blank. In the second rectangle they can write a 0 in the blank squares and a 1 in the coloured squares. Show the drawing below as an example. Now each child should cut his or her rectangle showing the 0s and 1s from the worksheet and give it to another child. On a second worksheet each child then draws the other child's picture by reading the numbers and colouring in the appropriate squares and leaving the others blank. Repeat this activity so that every child gets to draw two codes.

Encourage the children to look and see if the drawings made by their classmates are actually the same as their original drawing.

Discuss this activity with the children. Explain that they have just worked in the same way as a satellite. A satellite sends all its communication in the form of 0s and 1s and when they reach Earth all these 0s and 1s are converted back into a photograph.



0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	1	0	0	0
0	0	0	0	0	1	0	0	0	0
0	0	0	0	1	1	1	0	0	0
0	0	0	1	0	1	0	1	0	0
0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	1	0	0	0	0
0	0	0	0	1	0	1	0	0	0
0	0	0	1	0	0	0	1	0	0
0	0	1	0	0	0	0	0	1	0

Tip. As a variation on this task, you can encourage the children to design their own drawings. Instead of colouring in the squares, they can begin by using 0s and 1s. What will be the result when they colour the appropriate squares?

Send your message by satellite!

1 What is your message?

write your name **HERE**

Name:

convert your drawing into code **HERE**

write your name **HERE**

Name:

make a drawing **HERE** by colouring in the squares

esero