


# Do rollers help?

When Vikings travelled up rivers in ships they sometimes came across obstacles such as rapids that they could not sail round. The only solution was to take the ship out of the water and move it over land until it could be put back in the river again.

Vikings used rollers to help them move their ships. How did this help them?

1. Take a large model ship and attach a force meter to its bow.
2. Pull the ship across the surface of the table and note the size of the force used to make it move.
3. Now place some round pencils under the ship and pull again. What size of force is used this time?
4. (i) Do rollers help to move the ship?  .....

(ii) Explain your answer.

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5. Move the ship all the way across the table using a small number of rollers.

6. How do you think the Vikings organised themselves to move a ship across land?

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# Do rollers help?

## Age range

- Years 3/4 (SP4/5).
- Years 5/6 (SP6/7).

## Resources

Copies of the worksheet. A large model ship preferably with a flat bottom, force meter, string, sticky paper, round pencils or rods.

## Using the worksheet

You may like to try this activity after the students have made longships (see activity 13A). The activity could also be linked up with a study of forces or friction in a science topic. In step 6 you could link the activity to citizenship as an example of working in a group.

## Younger students

You may like to set the scene by getting the students to imagine they are sailing up a river and then discover that the way is blocked. If the students have tried activity 13B, where they arrange themselves as if on a longship, they may appreciate the problem more easily.

## Outcomes

The students can:

- Measure forces.
- Assess the usefulness of rollers in transport.

## Older students

The students could try this activity after activity 13B when they will have spent some time organising themselves into a group. They could then use this experience to help them answer the question at step 6.

The students may like to predict how the rollers will affect the transport of the ship before they try the investigation.

## Outcomes

The students can:

- Make a prediction and test it.
- Assess the usefulness of rollers in transport.
- Show how a group can be organised for a specific task.