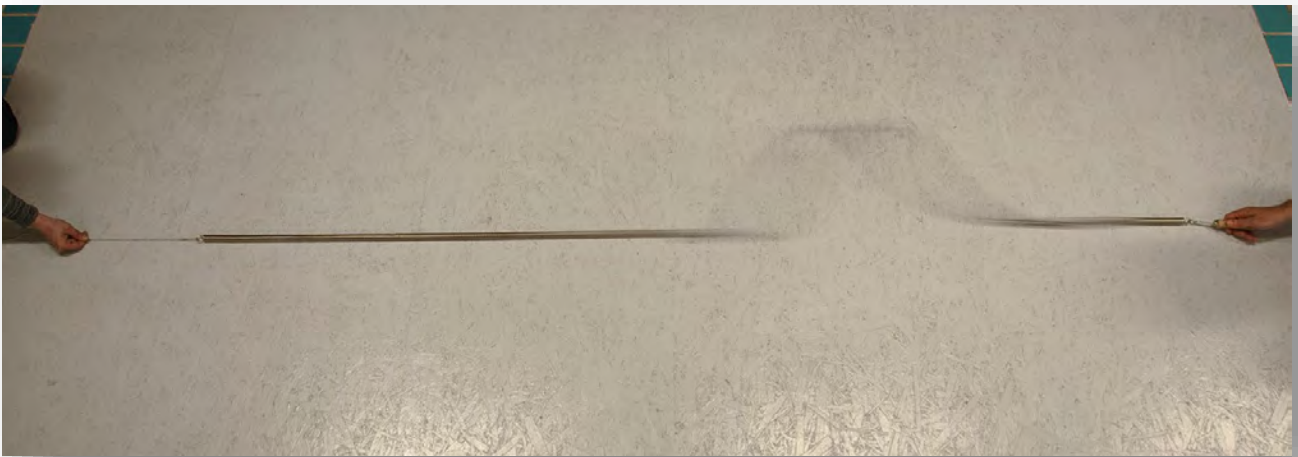


REFLEXION

SWD 02.04e

AT THE FREE END - SIMPLE



Material:

Item Code	Qty	Description
DW171-1S	1	Wave motion demonstrator, 180 cm
DG205-1G	1	Hook metal, with handle

AT THE FREE END - SIMPLE

Goal:

A transverse wave is to be examined to determine whether the wave is reflected at a free end or not. If so, in what form?

Setup:

The wave motion demonstrator is placed on a surface that is as long and smooth as possible. A smooth floor or several tables lined up at the same height are suitable for this purpose.

One of the ends of the spring should be a "free end". To do this, a string of about 70 cm is tied to the ring at the end of the spring. The end of the string is held, but the end of the spring can move freely.

The hook on the handle is hooked into the ring on the other end of the spring, extending it to about 300 - 350 cm.

Experiment 1:

The hook with handle is used to set the spring in motion by deflecting it about 30 - 40 cm wide, forcefully and as quickly as possible.

The movement of the spring is observed.

Result:

The hand movement creates a wave crest. The wave propagates over the entire length of the spring.

During reflection, the free end swings out, but in this case the wave runs back again as a wave crest. So there is no "swinging through" to the opposite side (no phase jump).

The reflected returning wave is no longer as high (half wave).

If the wave is strong enough another reflection of the returning wave (at the fixed end with hook) can be detected.

Experiment 2:

A wave trough is now created, and the course of the wave motion is again observed.

Result:

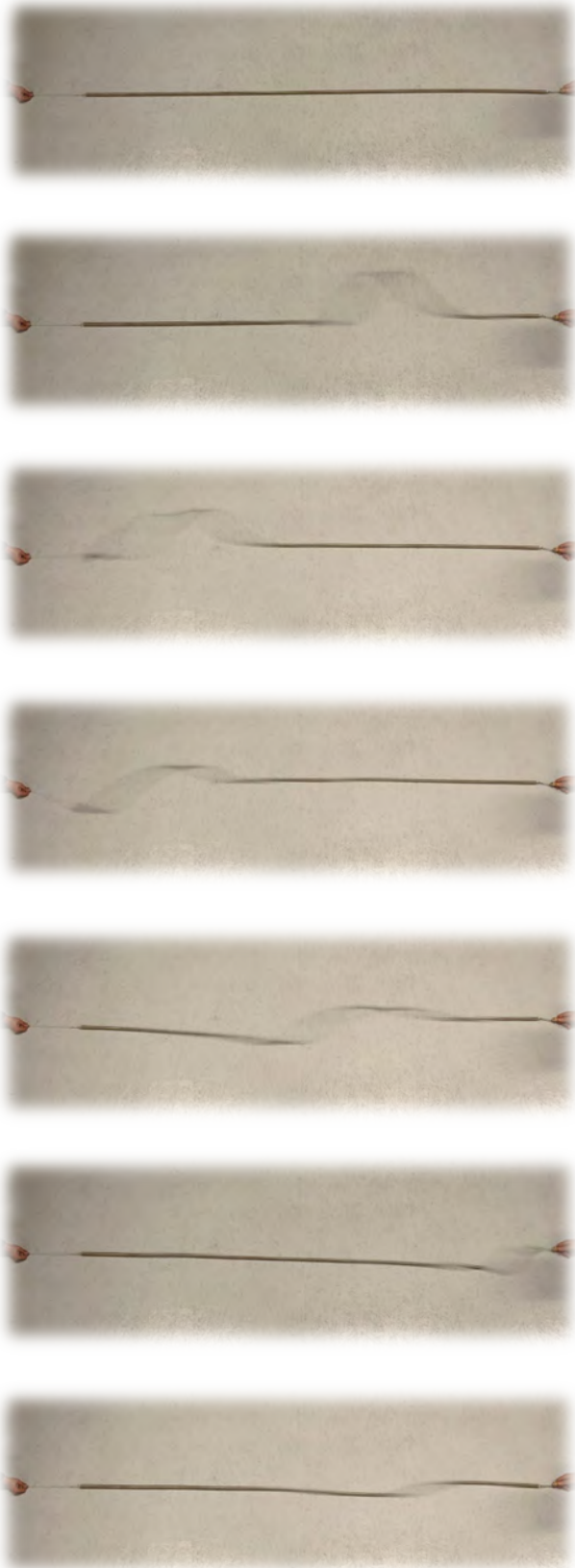
When reflecting at a free end, a wave crest returns as a wave crest and a wave trough returns as a wave trough - no phase jump occurs.

REFLEXION

SWD 02.04e

AT THE FREE END - SIMPLE

Wave crest and reflection



Wave trough and reflection

