



## AMAZING LIQUID LIGHT

*When light doesn't travel in a straight line.*

### What you need

- a tall, slim glass jar with a screw on lid
- newspaper
- flashlight
- hammer
- large nail and a thin nail
- sink or container
- duct tape

### What to do

1. Ask for help to make two holes in the jar lid.
2. Using the hammer and nails, make a large hole near one edge and a smaller hole near the opposite edge.
3. Tape the flashlight to the bottom of the jar so the light shines into the jar.
4. Wrap newspaper around the jar and the flashlight so no light escapes. Do not cover the lid of the jar.
5. Pour water into the jar until it is full.
6. Put the lid on tightly.
7. Now you can "pour" light. In a very dark room, turn on the flashlight and pour water out through the largest hole into a sink or container (the small hole allows air to be replaced in the jar).



### Observation

- Does the light beam shine straight ahead through the hole in the lid, or does it stay inside the stream of water?
- What happens to the light if you put your finger in different parts of the stream?

### Why?

Light does travel in a straight line but there are times when it doesn't. Water bends light.

The path of the light is bent in the water. Then it reflects back and forth off the inside surface of the water in the stream.

### Did you know?

Light is a sequence of vibrations, sort of like sound vibrations. Scientists discovered how to control light vibrations to send information. So, when you talk on the telephone, the vibrations of your voice are changed into laser light. Lasers are used because they produce light vibrations that can travel along in a narrow beam of light through optical fibres, which are strands of material that allow light to travel in the same sort of way that the light traveled through the water in the activity.

The person you are talking to hears your voice when the light beams are changed back into sound vibrations.

### Web sites

If you want to find out more about light and optics this is a good place to start.

<http://www.geocities.com/CapeCanaveral/7689/light.html>

More explanations of how fibre optics are used in communications technology.

<http://www.howstuffworks.com/fiber-optic.htm>