

3.1 SOUND BOARDS

How can sound waves tell you what's underground?

MATERIALS

Per small group of students:

- Two solid wood boards, 8½ x 11 inches, ½ - ¾ inches thick
- One sheet balsa wood, 8½ x 11 inches
- Four ⅞ - inch nails
- Keyhole saw or jigsaw
- Electric hand drill
- 8½ x 11 inch paper
- Masking tape
- Graph paper

DIRECTIONS

To prepare ahead

1. Take one of the boards and using the keyhole or jigsaw cut four irregularly-shaped holes: one large hole, two medium holes and one small hole.
2. Trace the location of the holes on the paper and put it away so students do not see it.
3. Sandwich the board with the holes between the balsa wood and the other solid wood board and nail them together.

The activity

4. Ask the class how they should find out where to drill in the boards to find the "oil." Eventually, someone should come up with the idea to knock on the board and listen for a hollow sound over the holes—much like geologists do with seismic geophones.

5. Put a piece of graph paper over the board and have students show their estimates of where the "oil" is by marking the locations of reservoirs.
6. After the students have recorded their "oil" fields, check to see if they have found all four locations. If they have not, tell them there is more "oil."

REFLECTION

1. Relate the experience students had with their wooden model to that which geologists face when searching for crude oil. Are the students sure they have properly identified the "oil" reserves?
2. Which of the potential sites drilling sites is the best?
3. If the students represented an oil company, how much would they be willing to pay for the right to drill in each of the sites?

