GeoBox

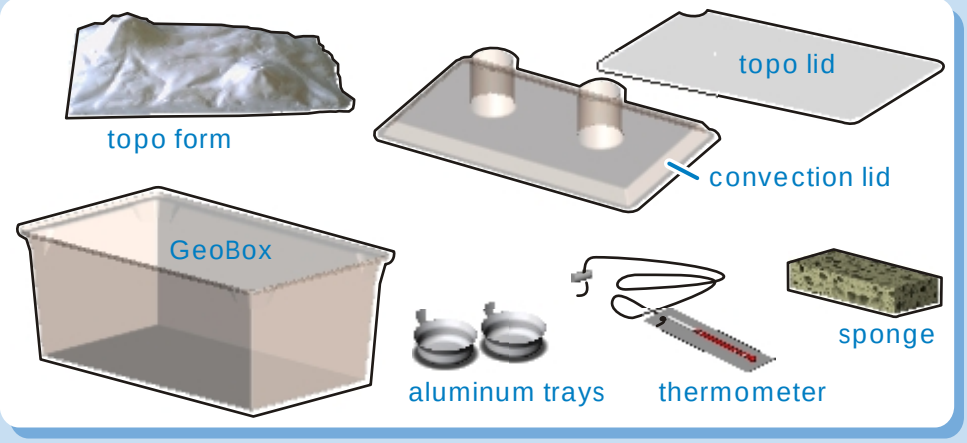
Setup Instructions

The GeoBox is a versatile set of materials for hands-on investigations into topographic mapping, floods & wetlands, convection, earth's heating and cooling, and even wave action. Below is an overview of different GeoBox configurations for exploring these topics of investigation. Detailed setup instructions can be found in CPO Science *Focus on Earth Science Teacher's Guide*.

Parts Checklist

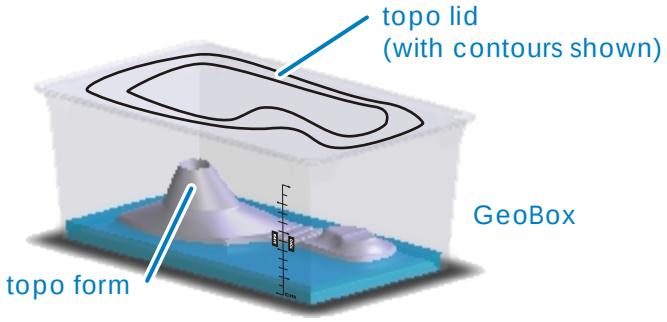
The following items are provided with the GeoBox Kit:

- GeoBox
- convection lid (2 stacks)
- topo lid (flat)
- topo form (white form)
- sponge
- thermometer
- string and cord lock
- aluminum dish (2)



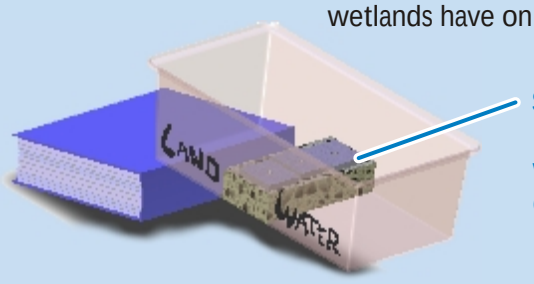
Topographic Mapping

Pour water into the GeoBox up to the 0 cm line. Place the topo lid on the GeoBox and trace the coastline, where the water and land meet, onto the lid. Increase the water depth 1 cm at a time. Each time water is added, trace the coastline onto the lid to create a topographic map.

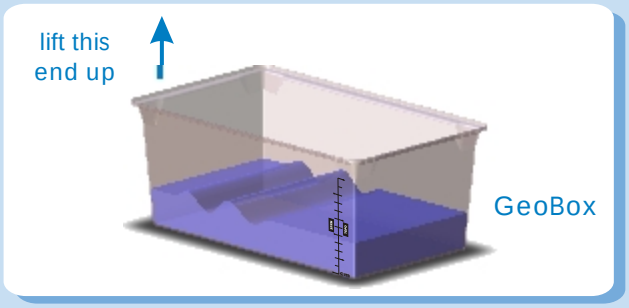


Floods & Wetlands

Place a sponge in the middle of the GeoBox; add weights to keep the sponge in place. The sponge represents a wetland, joining the land and water sections of the GeoBox. Add soil to the land section and pour on rain. See what happens to the wetland. Alter the experiment using polluted (muddy) water for rain. Remove the sponge and repeat the experiment to see the impact wetlands have on our water.



Waves



Start by filling the GeoBox with 1 cm of water. To make waves, simply lift one end of GeoBox about 1 inch and let it drop on the table.

Gradually increase the depth of the water, 1 cm at a time, up to 6 cm. Create waves and observe how the water depth affects the speed.

Setup instructions continue on page 2.

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GeoBox

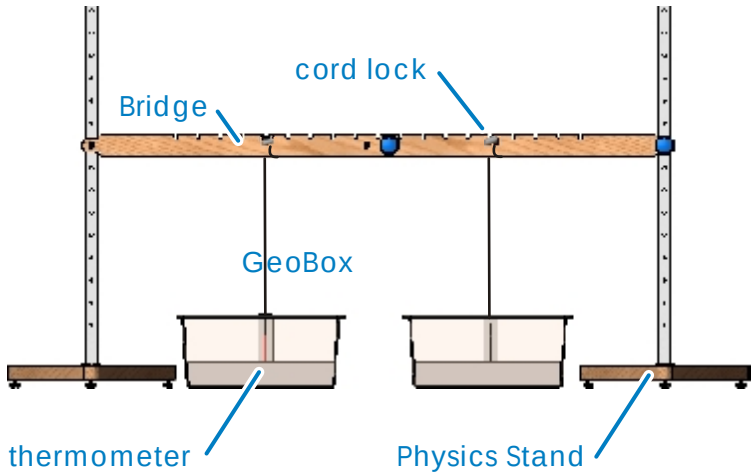
Heating & Cooling

This investigation requires 2 teams to join so that 2 GeoBoxes may be used concurrently. Set up 2 Physics Stands and connect them with a Bridge (included in the Earth Science equipment kit). Attach 2 lamps (not included) to the Bridge.

Fill one GeoBox with 5 cm of water, the other with 5 cm of soil. Place the GeoBoxes directly beneath the lamps on the Bridge.

Place thermometers in each GeoBox so that the thermometer bulb is about 1cm below the surface.

Turn the lights on and record temperatures each minute for 10 minutes. Use this data to discuss the specific heat of ocean versus land.



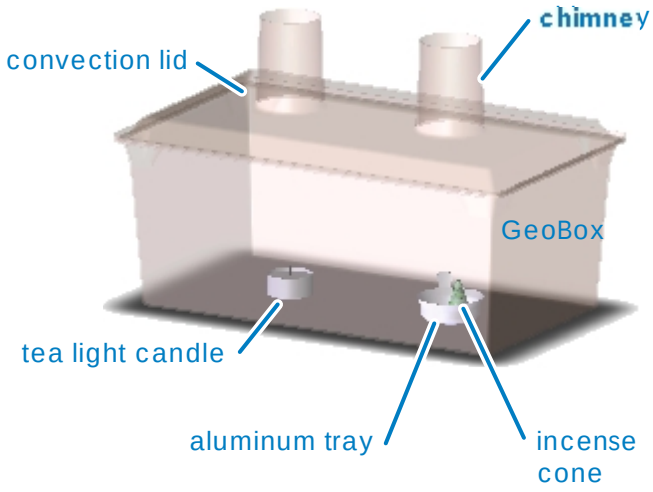
Convection

Place a tea light candle directly under one chimney and a cone of incense in the aluminum tray under the other chimney. Light the incense using a butane lighter or a long match. It will take a few minutes for the incense to begin to smoke.

Put the convection lid on the GeoBox and watch the smoke rise up the chimney above the incense.

Remove the convection lid and light the tea light candle. Replace the lid. Watch for the change in the smoke.

NOTE: You must use only one tea light candle for this investigation. The candle must be placed directly under a chimney. Do not use a votive candle. Tea light candles are approximately 1-1/2" diameter x 5/8" high. Candle and incense are not included.



WARNING: DO NOT LEAVE CANDLE UNATTENDED. DO NOT allow the candle to burn longer than 5-6 minutes, and never without adult supervision.

For detailed instructions on these investigations, consult your CPO Science *Focus on Earth Science Teacher's Guide.*

For technical assistance, please call 866.588.6951.

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