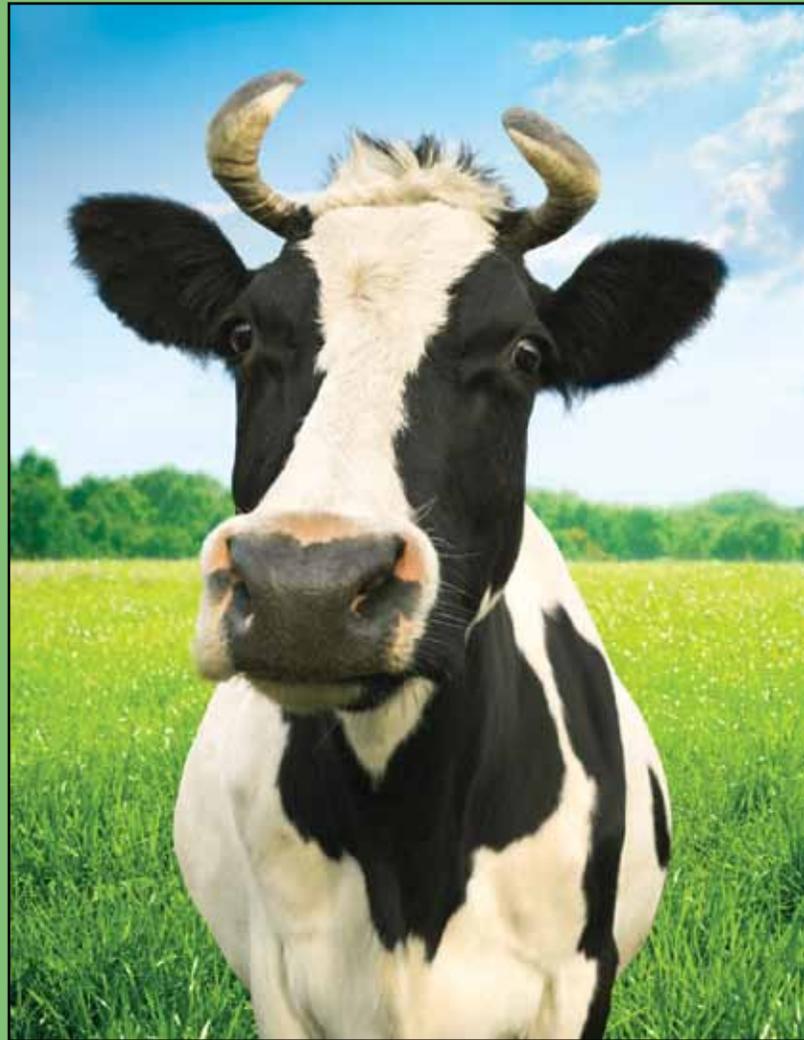


Carbon Sink or Carbon Source?

Instruction Manual



New England
Aquarium

Protecting the blue planet

Carbon Sink or Carbon Source?

This activity is designed for adults, families, or kids ages 9 and older with their families. Some younger children have been engaged by this activity and can help with sorting.

Materials

Sink or Source setup (wooden stand, wooden piece for the top, six metal dowels)

Cards with hooks

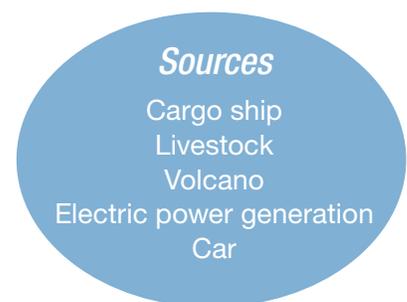
iPad

Setup

1. Clip the six metal dowels into their holders, with the weighted ends on the educator side of the cart. Try to line up the center groove on the dowel with the center of the white dowel that holds the metal holders.
2. Check alignment—the dowels should all fall at roughly the same angle.
3. Put the top wooden piece in, so that the dowels are parallel to the floor.
4. Array the images so the visitors can see them.
5. Get the iPad from the Magic Planet cart. Open the program “GoodReader.” If the Sink/Source activity is not showing, touch the center of the screen and touch “My Documents” in the upper left-hand corner. Select the Sink/Source document. Touch the center of the screen to get rid of the borders. Set it up so that visitors can see it.

Doing the activity

1. Ask visitors what they know about carbon sources and carbon sinks. They may be familiar with these terms, or not. They may be able to figure out carbon source fairly easily and need help figuring out carbon sink. *A carbon source is something that releases carbon into the atmosphere, and a sink is something that removes carbon from the atmosphere.*
2. Ask them to choose six images—try for three sinks and three sources. Ask them to hang the sources toward the Source side of the stand and the sinks toward the Sink side of the stand.



Doing the activity

continued

3. If there are any they are unsure about, give suggestions, but not answers. Part of the idea here is to see what is known in the general public on this subject.
4. When they think they are done, remove the wooden piece on the top to see if their guesses are correct. The sinks will sink down and the sources will rise up—somewhat relative to how big of a sink/source it is.
5. Ask the visitor what they notice about the sinks vs. the sources. Be prepared for responses like “all the sinks are good and all the sources are bad” or a similar judgment with “natural” vs. “unnatural.” Point out things like forest fires, volcanoes, and decomposing vegetation that are both “natural” and “good.”
6. The focus of the activity is balance—it is because there are so many man-made sources that the balance of carbon in the cycle is off. More carbon dioxide in our atmosphere is directly linked to climate change. Ask the visitors some actions they can take to reduce man-made sources.

Things to think about

Wait, forest fires are good?

Smokey the Bear did a fantastic job, and many people seem to be under the impression that all forest fires are a) bad and b) human-caused. In fact, forest fires are a necessary and natural part of forest progression. There are animals and plants specifically adapted to fire forests, such as blueberries and moose, both of which require the open canopy of edge forests, which are created by fires.

How come you environmentalists all say to compost if decomposing vegetation is a carbon source?

Yes, decomposing vegetation releases carbon dioxide. But compost also helps create healthy soil (a carbon sink) and reduces solid waste (a source of carbon, pollution, etc.) This is a great place to talk about the fact that there is no “silver bullet” for climate change.

Are all these sinks and sources equivalent? Are cows really as bad as cargo ships?

No. In fact, you will see that the larger sinks fall lower, and the larger sources rise higher. However, the extent to which they do so is fairly arbitrary. It is based on real data, but the relative change is not totally correct.

Is this a test? No. But several visitors seemed to be uncomfortable if this wasn't presented well. Make sure you are aware of how the activity is set up and presented to visitors so they understand it's okay if they don't know right away where these cards should go.