



Climate Kids

A Fun, Accessible Approach to Understanding
Climate Change and Sustainability



<http://climatekids.nasa.gov>

The screenshot shows the NASA Climate Kids website. At the top left is the NASA logo and the text "National Aeronautics and Space Administration". To the right is a search bar with the text "SEARCH CLIMATE KIDS". Below this is a banner with the text "CLIMATE KIDS NASA's Eyes on the Earth" and "GLOBAL CLIMATE CHANGE". A navigation bar contains icons for Home, Play, Make, Know, Keep, Watch, Dream, and Teach. The main content area features a large illustration of two lemurs on a tree branch with the text "Lemur moms and climate change." Below this are several interactive buttons: "Guided Tour of The Big Questions", "Or, go to menu", "Weather & Climate", "Air", "Ocean", "Fresh Water", "Carbon's Travels", "Energy", "Plants & Animals", and "Technology". There is also a "planet Health Report" section with sub-sections for AIR, TEMPERATURE, SEA ICE, and SEA LEVEL. A "Video" section titled "CLIMATE TALES" features a cartoon character and the text "Will our heroes ever find their way home?".

What is Climate Kids?

- Climate Kids is the kids' page that accompanies NASA's Global Climate Change website.
- Geared toward upper-elementary school aged students.
- Explains the basics behind climate change science, sustainability, and biodiversity.



It Answers the Big “Questions”



Big Questions

Guided Tour of The Big Questions

Or, go to menu

Weather & Climate

Air

Ocean

Fresh Water

Carbon's Travels

Energy

How do we know the climate is changing?



So what if Earth gets a tiny bit warmer?



The sky is still blue. Trees are still green. Wind still blows. Clouds are still white and fluffy. Rain still pours from the sky. Snow falls and it still gets really cold sometimes in some places. Earth is still beautiful.



Big Questions

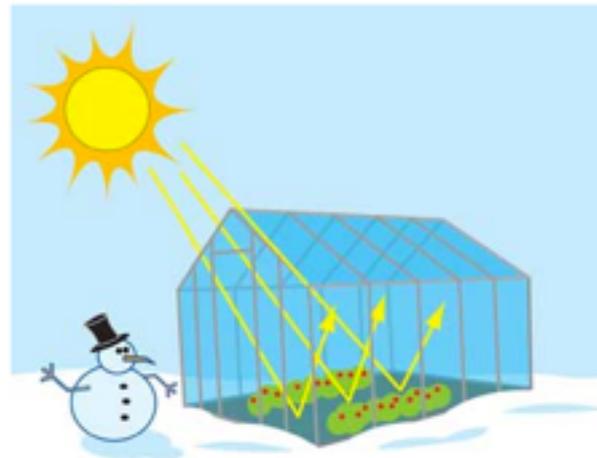
Guided Tour of The Big Questions

Or. go to menu :

- Weather & Climate
- Air
- Ocean
- Fresh Water
- Carbon's Travels
- Energy

What is the greenhouse effect?

What is a greenhouse?



A greenhouse is made of glass. It traps the Sun's energy inside and keeps the plants warm, even in winter.

A greenhouse is a house made of glass. It has glass walls and a glass roof. People grow tomatoes and flowers and other plants in them. A greenhouse stays warm inside, even during winter. Sunlight shines in and warms the plants and air inside. But the heat is trapped by the glass and can't escape. So during the daylight hours, it gets warmer and warmer inside a greenhouse,

Big Questions

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What can we do to help?

Can I help nature to help us?

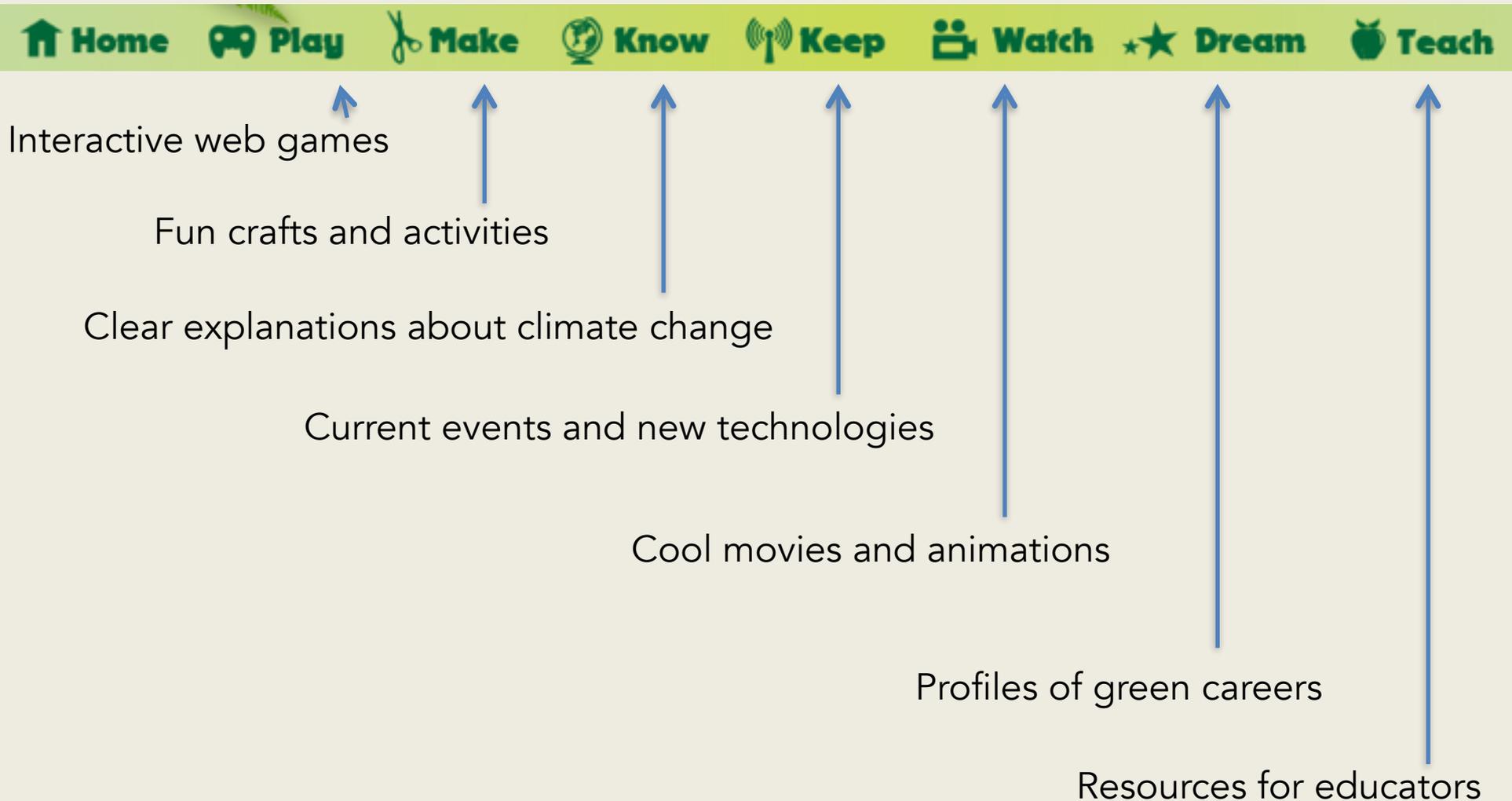
Yes! We can all take notice of our environment. We can learn how our planet works. We can learn how to live on it without making a mess of it. We can help to keep it magnificent for ourselves, our children and grandchildren, and other living things besides us.

Some of the ways you can help may have to wait until you are a little older—like choosing an energy-efficient car, installing solar panels on the roof of your house, or choosing a ["green career."](#)

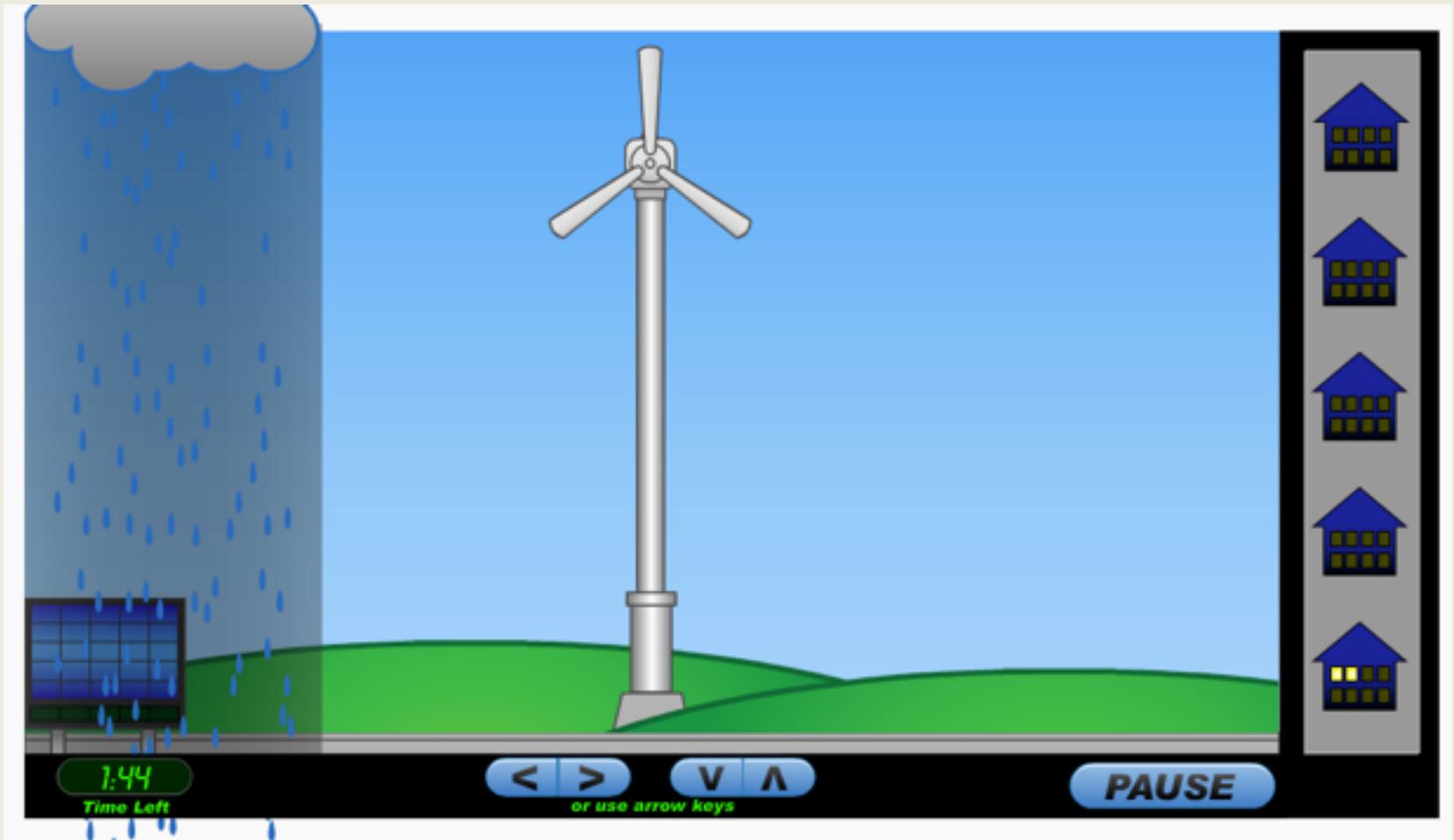
But there are many important ways you can help right now.

You can help by growing your own vegetables and fruits. You can help by planting a tree. Your new plants and trees will help to remove the greenhouse gas CO₂ from the air. If you grow some of your own food, you will also help to prevent more CO₂ from entering the air from the fossil-fuel-burning trucks, planes, and ships that [transport your food to you from far away.](#)

Multiple Kinds of Content

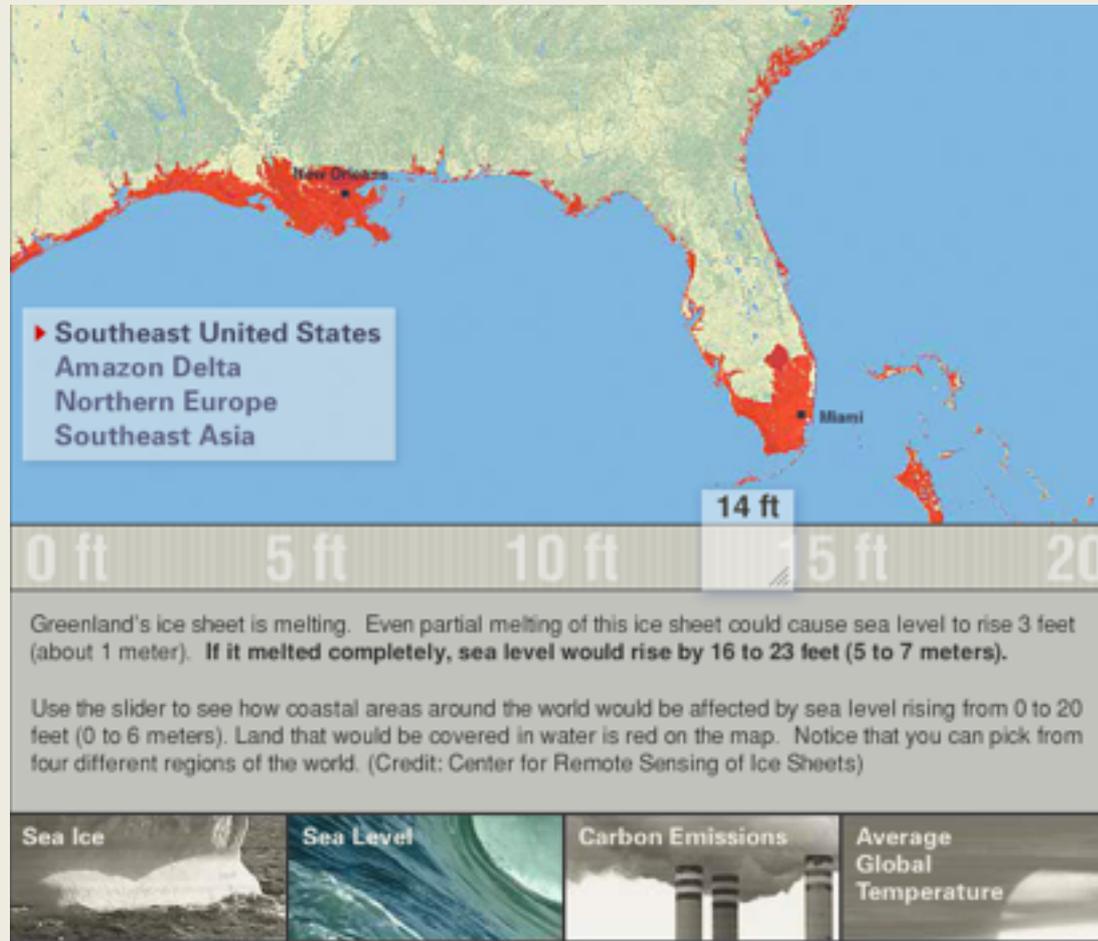


Multiple Kinds of Content



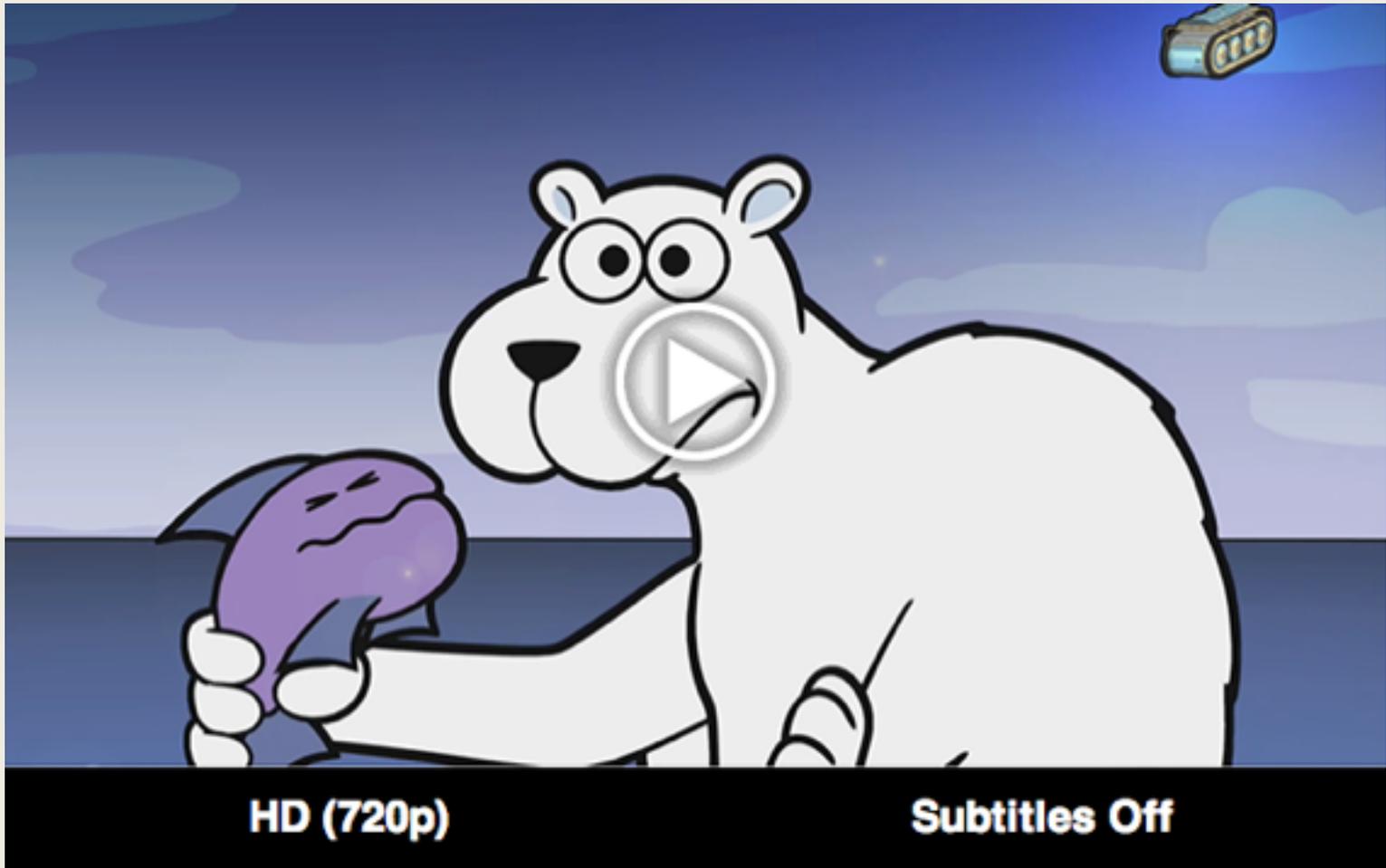
Game: Power Up!

Multiple Kinds of Content



Interactive Media: Climate Time Machine

Multiple Kinds of Content



Animated Movie: Climate Tales

Multiple Kinds of Content

Cut here, 1 inch from the edge of the box top.

Cover the bottom (inside) of the flap with aluminum foil, spreading a coat of glue from the glue stick onto the cardboard first and making the foil as smooth as possible.

Line the inside of the box with aluminum foil, again gluing it down and making it as smooth as possible.

Make sure the foil inside the flap is very smooth, to make it like a mirror.

Tape two layers of plastic wrap across the opening you cut in the lid—one layer on the top and one layer on the bottom side of the lid.

Two layers of plastic wrap over the opening will help keep heat in, while still letting all the light shine through.

Activity: Solar Oven

Make Exploding Seed Balls!

Credit: Kevan Davis.

Want to have some fun while making the world a greener, more environmentally-friendly place? Make exploding balls of seeds that are both fun to throw and an easy way to grow native wildflowers.

Here's what you need (makes 8-10 balls):

- 1/2 oz native wildflower seeds.
- 3 1/2 oz dry, organic potting soil
- 1 1/2 oz dry clay (we suggest powdered red pottery clay)
- Water
- A mixing bowl
- A cookie sheet for drying the seed balls
- wax paper

Here's what to do:

1. Line cookie sheet with wax paper.
2. Mix seeds and potting soil together.
3. Add dry clay and mix again.
4. Slowly add water while still mixing the seeds, potting soil, and water into a well-blended paste.
5. When you are able to form a ball of the blended material without it falling apart, you

Activity: Seed Balls

Multiple Kinds of Content

Birds and climate change
✂️ 🌱 ❄️



A dickcissel singing on a wire. Credit: David L. Gevoiri

Invasion!
Northern parts of the central United States got an unexpected visitor in the summer of 2012. Actually, it got thousands of them. The area experienced an invasion of a brown and yellow bird named the dickcissel.

Dickcissels are common to many areas in the United States. They are not common in northern parts like North Dakota, Minnesota, and Wisconsin. Why did the dickcissel show up in these areas? Extreme weather caused by climate change may have forced them to find a new home.

Trouble for birds

Climate change does a lot more than just heat up our planet. Climate change can also cause more intense weather. That could mean more hurricanes, floods, heat waves, droughts, and even cold spells.

This extreme weather can be trouble for birds. Scientists have noticed that when extreme weather happens, fewer birds show up in the places they call home.

Make your own bird feeder!

Want to take a close-up look at the birds in your neighborhood? Follow these simple instructions to make a bird feeder that birds won't be able to resist!

What you will need:

- An empty toilet paper roll
- Some string
- Peanut butter
- Bird seed



A finished toilet paper roll bird feeder.

Step 1: Punch two holes on one end of the toilet paper roll using a pencil. Make sure the holes are across from each other so that you can put a string through it.

Step 2: Put a string through both holes. Tie the loose ends of the string together

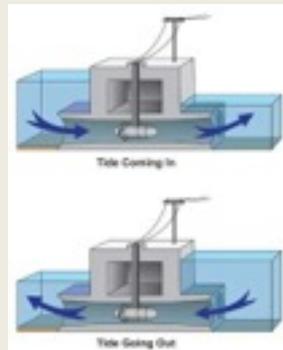


A Wide Range of Topics

Guided Tour of The Big Questions

Or. go to menu

- Weather & Climate
- Air
- Ocean
- Fresh Water
- Carbon's Travels
- Energy
- Plants & Animals
- Technology



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What is happening in the ocean?

Why is the ocean important?

After all, we live on land.

But our world is a water world. The ocean covers 70% of Earth's surface. The average depth of the ocean is about 2.7 miles. In some places, the ocean is deeper than the tallest mountains are high! The ocean contains about 97% of all the water on Earth.

Our watery world.

The ocean plays a starring role in whatever happens with the environment. One big part of its role is to soak up energy (heat) and distribute it more evenly around the Earth. Another part is to soak up CO₂.

How does the ocean soak up energy?

How can a water balloon teach us about climate change? Watch this video and find out.

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It's cold! Is global warming over?

Brrrrrr!

The winter of 2010 was very cold in many parts of the U.S. And no doubt, more harsh winters are in the future.

That's [weather](#) for you.

This satellite image of the U.S. mid-Atlantic coast shows an unusually heavy snowfall in the winter of 2010. The state lines

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Tower of Power

Sunlight is a powerful thing. A tiny magnifying glass is able to focus just a little bit of the Sun's light into a hot beam. This beam is hot enough to burn a small pile of dry leaves!

DO NOT TRY THIS WITHOUT ADULT SUPERVISION!

Imagine how hot it would be if an entire field's worth of sunlight were focused onto one tiny point.

You would get a superhot beam of bright light. Sounds like something out of science fiction, right?

But it is not science fiction at all. In fact, this beam of light is the key ingredient in the newest form of solar energy. This technology is named concentrating solar power, or solar thermal energy.

THERE IS MORE THAN ONE WAY TO COLLECT THE SUN'S ENERGY:

Linear concentrator systems.

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Lemur moms

Trouble for lemurs!



Deep in the mountainous rainforests of Madagascar, a furry brown and white creature leaps from tree to tree. As it moves high above your head, you notice that two smaller creatures cling to it. You are witnessing the travels of a lemur and her babies. This lemur is called the Milne-Edwards Sifaka. You are lucky because this kind of lemur may be harder to find in the future. That's because climate change is making it difficult for some lemur mothers to care for their offspring.

Lemurs are a kind of primate. Primates are animals like monkeys, apes, and even humans. This specific kind of primate lives in only one place—the island of Madagascar. Many lemurs, including the Milne-Edwards Sifaka, live in the lush rainforests that are scattered throughout this island. These rainforests are obviously pretty wet. That doesn't mean they are protected from the effects of climate

Lemurs of Madagascar!



Black and white ruffed lemur. Credit: Frank Vassen.



Mouse lemur. Credit: Alex Dunkel

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Green Building Contractor

A CONVERSATION WITH . . .

BLAINE ROWLAND

Climate General contractor doesn't sound very "green."
Kids: What do you do?

Blaine: I coordinate all the various workers needed to build a house. This job can be green or not-green, depending on how it's done.

CK: How many different workers are there?

Blaine: Lots, and getting them all scheduled in order can be tricky. It starts with grading the lot and digging the foundation. Next the concrete foundation gets poured. Then the framer builds the wood structure, followed by the roofer, siding installer, plumber, electrician, heating and air-conditioning specialist, insulation specialist, drywall installer, finish carpenter, cabinet maker, tile setter, flooring installer, painter, and landscaper.



The leaves painted on Blaine's truck are symbols of his concern for the environment.

Resources for Educators

The screenshot shows the Climate Kids website interface. On the left is a sidebar with a 'Guided Tour of the Big Questions' section and a 'Go to menu' dropdown. Below these are several navigation buttons: 'Weather & Climate', 'Air', 'Ocean', 'Fresh Water', 'Carbon's Travels', 'Energy', 'Plants & Animals', and 'Technology'. The main content area is titled 'PDFs of Climate Kids activities' and features a 'Climate Kids PDF Center' section. This section contains a list of activities, each with a small image, a title, a brief description, and links to 'Download PDF' and 'View on the Climate Kids website'. The activities listed are: 'A bee is more than a bug!', 'Make Sun a'more!', 'Make a terrarium mini-garden!', 'Bag an old T-shirt!', and 'Make your own bird feeder!'. A blue text box on the right side of the PDF center states: 'On this page, we offer print-ready .pdf files of Climate Kids' popular hands-on activities. Print these out and you no longer need to be connected to a computer to have a fun, educational experience. Perfect for the classroom, for after school, or for camps.'

- Search page dedicated to educator resources.
- Access to course materials.
- PDFs and other print-outs and posters for classroom use.

Resources for Educators

Next Generation Science Standards



A consortium of 26 states and other science groups created the Next Generation Science Standards. Many states plan on adopting them in the coming years. The standards are organized into three dimensions: disciplinary core ideas, science and engineering practices, and cross cutting concepts.

Climate Kids can help educators build lesson plans that align with the Next Generation Science Standards. Use the tool below to search for Climate Kids content that matches different elements of these new standards.

Disciplinary Core Ideas **Science and Engineering Practices** **Crosscutting Concepts**

Sort by:

3-ESS2 Earth's Systems

ESS2.D: Weather and Climate

- Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. (3-ESS2-1)
- Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. (3-ESS2-2)

| | |
|---|--|
|  Water-wise Landscaper A person who uses native, drought-resistant plants to create outdoor environments for homes and other... |  How do we know the climate is changing? The clues are everywhere! |
|  What is "global climate change"? Earth is warming fast. But why? |  Climate Tales Where will the Displacer take our heroes next and what will befall them? |
|  It's cold! Is global warming over? Weather and climate are different. |  Planet Health Report: SEA ICE Why is sea ice an Earth "vital sign"? |

3-LS1 From Molecules to Organisms

3-LS2 Ecosystems: Interactions, Energy, and Dynamics

- Next Generation Science Standards search feature available!
- Browse content by different items on the Next Generation Science Standards.
- Can sort by disciplinary core ideas, science and engineering practices, and cross cutting concepts.



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