

# NYBG

## AT-HOME GERMINATION BAGS

Materials: any seeds available, ziplock bags, two paper towel pieces, water

1. Make observations of the seed. Where do you think the seed will open?
2. Moisten and layer the two paper towel pieces and place the seed on top.
3. Carefully place the paper towels and seed into the ziplock bag
4. You can keep the bag laying down or upright. If you keep the bag upright, put a line of staples one inch from the bottom of the bag to keep the seed from falling
5. Keep the bag open for air and in a warm spot. Make observations every day.

Extra challenge: try making two bags with the same seed and place one in a dark area and one in a bright area. Make note of the differences and see which seeds like to germinate in light and which do not!



Photo from Inspirational Laboratories

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## SOUND PARTNERS

Materials: Small containers that are not transparent (pill bottles or colored tupperware. You can also cover the container with a sock or cloth—the idea is that students cannot see the seeds), various common seeds (beans, rice, sunflower, peanut, almond, popcorn, apple seeds, chia seeds, sesame seeds, coffee beans, etc.)

1. Fill your small containers with a small amount of one type of seed. Make sure there are two containers of each kind of seed. (For example, two containers of coffee beans, two containers of popcorn).
2. Students should listen to the container when they shake it. Encourage them to infer what type of seed is inside. Then, they can try to find the matching container that makes the same sound.
3. Encourage students to draw the sound of a container. Is it big or small? Does it have a color?
4. See if you can make music with the various sounds, each having their own rhythm.

### Other ideas for observing sounds

Someone can drop various objects while others have their eyes closed. Describe the sounds and guess the object. Is there another object in your house that could make the same sound? Test your hypothesis!

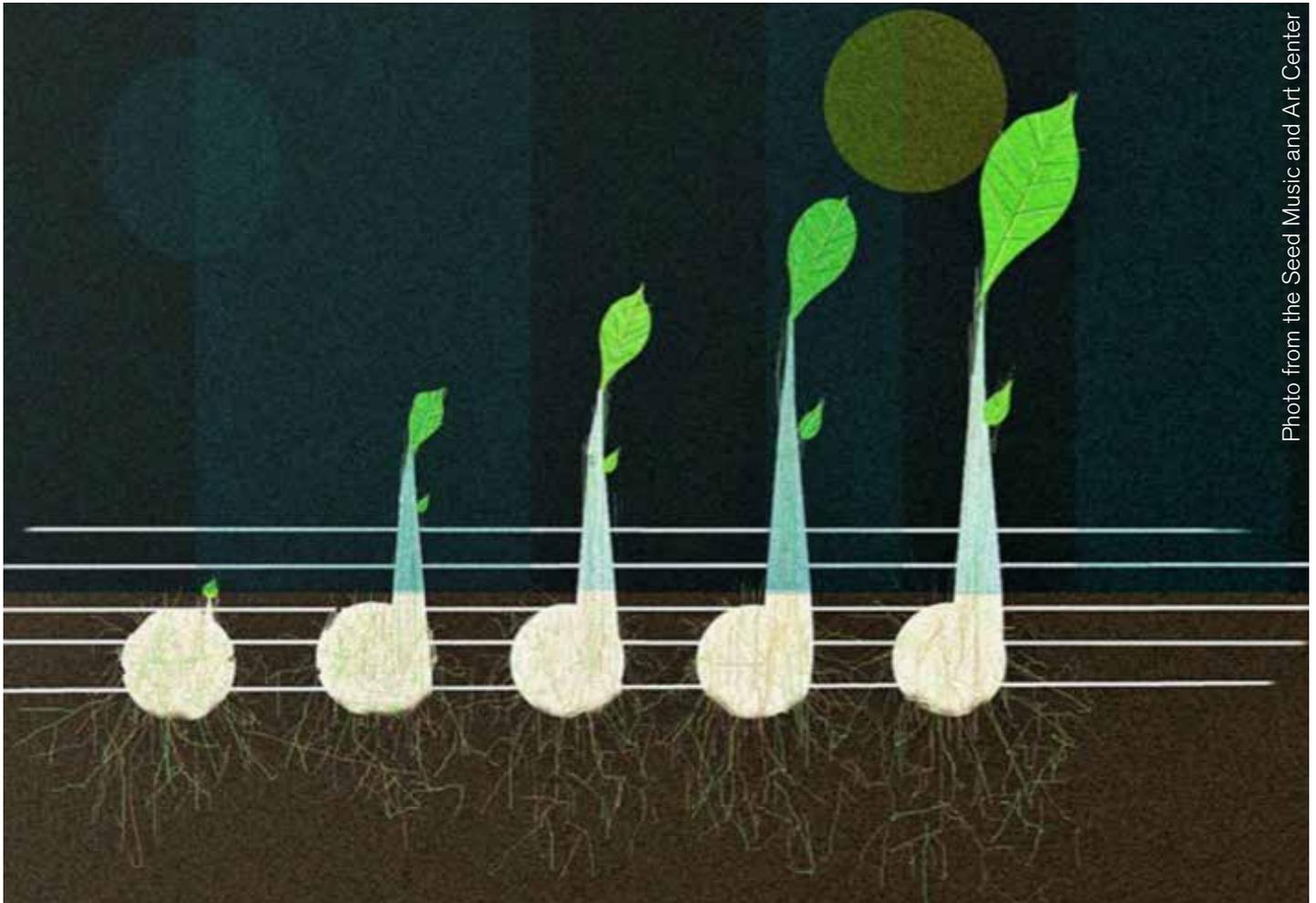


Photo from the Seed Music and Art Center

# NYBG

## CLOUD TYPES

1. Make it a habit to observe the clouds everyday. This can be done once or several times throughout the day. You can make a simple chart to record your observations (below).
2. Using your own observations, try and identify what type of clouds you are observing. There are many types of clouds classified by meteorologists. Use the chart below or research on your own.
3. At the end of each week, see if you can determine patterns of clouds. Are you only seeing one or two types of clouds? Does the cloud type change throughout the day? Are there only cirrus clouds on Saturday?
4. If you are able, take a picture of the clouds from the same place, capturing the same area everyday. This will be helpful for the Cloud Coverage activity.

Date	Time of Day	Characteristics of clouds (puffy, gray, long, low in the sky, etc.)

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## CLOUD COVERAGE

Materials: photos of clouds in the sky or a pre-determined area of the sky you can see, graph or plain paper

1. Using the photos from the cloud types activity, or looking at a specific area of the sky, how many clouds do you notice? What percentage or fraction of the sky do you think is filled with clouds?
2. Transcribe the picture or sky onto your graph paper. If you don't have graph paper, you can divide plain paper into 10 squares. Use the following to assess cloud coverage.

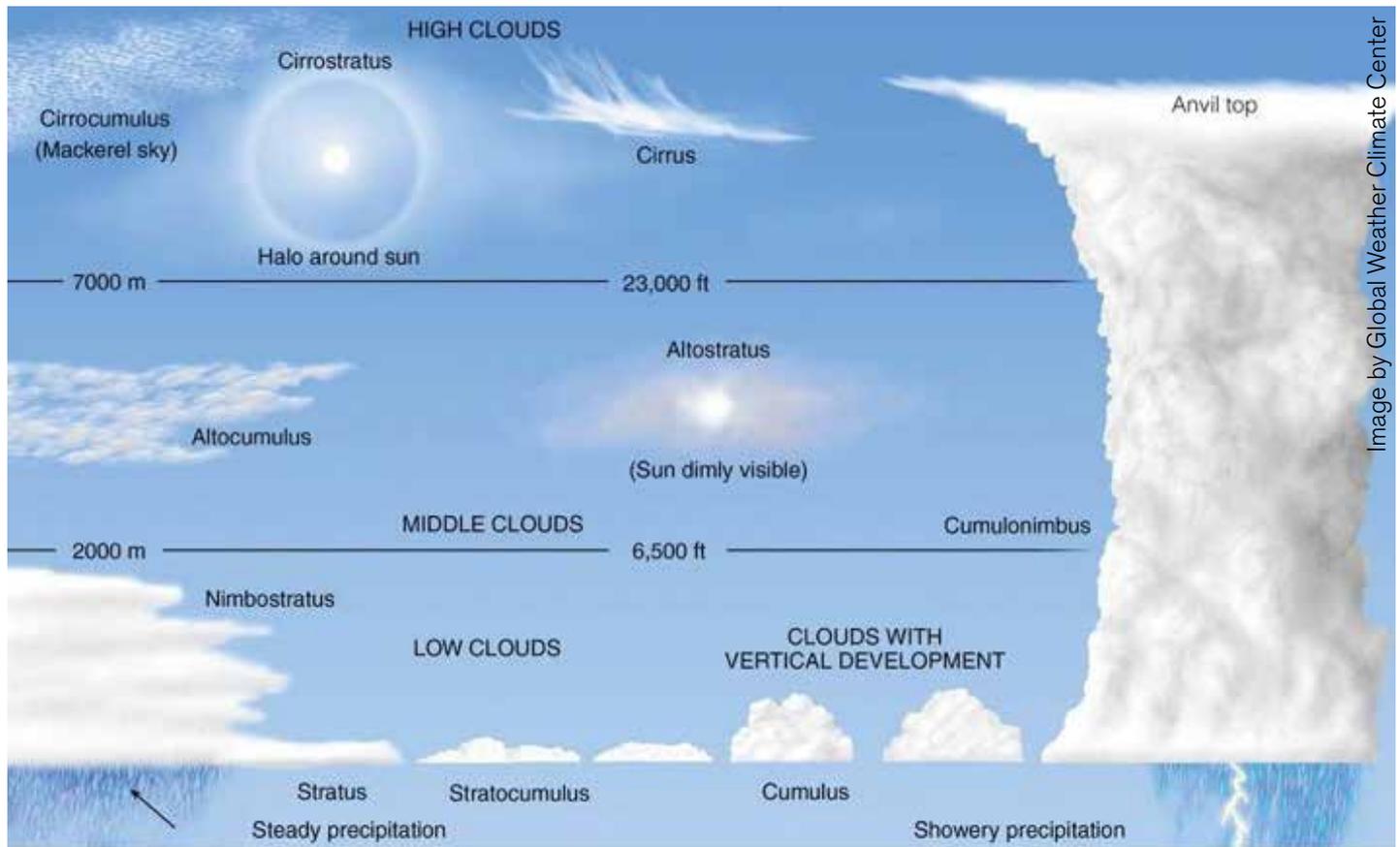
Clear: 0/10 covered

Scattered: 1/10 to 5/10 covered but far apart

Partly Cloudy: 5/10 covered

Mostly cloudy: 6/10 to 9/10 covered

Overcast: 10/10 covered



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## INDOOR PLANT AND SOIL ACTIVITIES

### 1. Determine the region of most rapid growth of a root

Start with five germinating seeds (see Germination Bag activity that have straight roots about 2–3 centimeters long.) Use a fine-tipped sharpie to draw lines at 2 millimeter intervals on the roots. Place in a moist environment. Measure the link lines on each root every two days to see how long your roots grow! Record findings in a table. See sample below.

### 2. Flower comparison

Make a comparison of several flowers. These could be flowers in your home, collected from outside, or from pictures found online. Compile your comparisons in a chart. Compare the number of petals, color of petals, and shape of petals. For a more advanced option, compare the number of sepals, stamens, and pistils.

### 3. How do pine cones react in wet weather?

Place one pine cone in water for 10 minutes. Keep one dry. What happened to the wet pine cone? Why do you think this happened?

### 4. What can you see within a few square inches of your environment?

Use an empty picture frame and magnifying glass (optional) to examine a mini environment. This can be done outdoors or indoors (e.g. using a patch of soil, the floor, the design of your couch, or a house plant).

### 5. How is soil created?

Rub two rocks together. Examine with your eyes or a magnifying glass. Ask the following questions: what colors do you see and how do they compare to the rock? In nature, how do you think rocks turn into dirt and soil?

### 6. How do seeds of fruits compare?

Cut any fruits you may have, such as oranges, lemons, apples, bananas, or peaches. What do you notice about the seeds? How are they alike and how are they different? What do the seeds remind you of? Use these seeds for the Sound Partners activity.

Seed Type	Date	Distance from seed to sharpie line (mm)