Plant A Beat

Literacy Science

Grade Level
1-5

Length of Lesson
45 minutes

Objective
By the end of this lesson, students will have a basic understanding of how agricultural products are used to make instruments.

Materials
- Copy of *Building an Orchestra of Hope: How Favio Chavez Taught Children to Make Music from Trash* by Carmen Oliver
- "Plant a Beat" worksheet (included)
- Choose the instrument(s) you want to make. Materials are listed on the next pages.

Standards
Common Core
CCSS.ELA-Literacy.RI.4.7; SL.4.1
Science 1-PS4-, 2-PS1-3
SEL 2B.2a

Lesson Summary
This engaging, hands-on lesson helps students explore the value of repurposing materials while deepening their understanding of diverse social and cultural groups. Students will also investigate how vibrating materials produce sound and discover the connection between musical instruments and agriculture.

Suggested Sequence of Events:
1. Set Up: Choose which instrument(s) (drum, guitar, castanet, maraca) you want your class to make. Try to plan ahead and have students recycle materials to bring in and use for these instruments.
2. Set the materials out on the table. If you are making more than one instrument, separate them by table. Set out the student worksheets for the chosen instrument(s).
3. Read *Building an Orchestra of Hope: How Favio Chavez Taught Children to Make Music from Trash* by Carmen Oliver to capture student interest.
4. Have a class discussion about the challenges that the children in Cateura, Paraguay had and how they recycled trash to become something new and useful - instruments!
5. Complete the activity following the procedures:
    - Find the two-page worksheet that corresponds with the instrument you're making to print out for students.
    - Pass out the materials for the instrument(s) that you have chosen (materials and instructions are listed at the top of each instrument specific worksheet).
    - Have the students answer the inquiry question (you can do this as a class or have students complete individually).
    - Make the instruments by using the instructions provided on each instrument-specific page.
    - Turn to the second page and learn how the instrument connects to agriculture!
    - Have fun playing your newly recycled instruments!
6. Whole class discussion and reflection of activity.

Name: _____

PLANT A BEAT - DRUM

Drum (Balloon Tin Can Version)

- Materials:
  - Small tin cans
  - Balloons
  - Scissors
  - Ribbon
  - Paint and brush
  - Craft glue or hot glue
  - Popsicle sticks (optional - to play the drum)

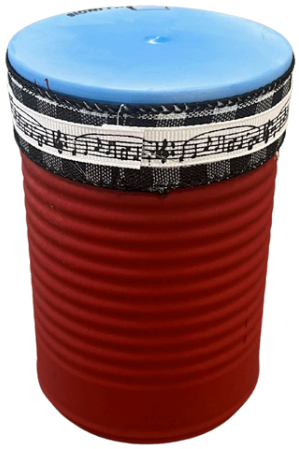
Steps:

- Wash, dry, and remove labels from cans.
- Paint or decorate as desired.
- Cut the end off a balloon.
- Stretch balloon over can opening.
- Secure with ribbon around the seam.
- Let dry.

Take a few minutes to think about how drums are connected to agriculture.
Talk with your classmates and write your ideas in the box below.

MAKE YOUR OWN DRUM!

Follow the steps above to make your own drum!
Your drum will look something like the one in this picture.



Name: _____

PLANT A BEAT - DRUM

Drums & Agriculture

Did you know that drums are connected to agriculture? Long ago, people used materials from nature to make instruments like drums. A book from China, written over 1,000 years ago, says that a man named Qibo invented the drum. He worked for the Yellow Emperor.

Many drums are made from wood, which comes from trees like birch, maple, oak, and beech. These trees are grown and harvested by farmers and workers in the forestry industry—this is a part of agriculture!

To make a drum, thin pieces of wood are cut from tree trunks. These pieces are called plywood. Several layers are glued together to make the drum strong and help it make a good sound. Some drums use six to ten layers of wood.

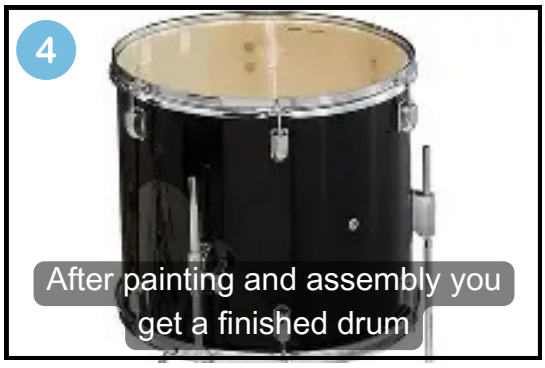
Because drum sets have several drums that need to match, drum makers choose wood that looks and sounds the same. This means they must carefully pick the right type and color of wood—another reason why trees and agriculture are so important to music!

From the left: beech, birch, and maple plywood

The first layer is knocked into a warm mold

A Drum is Born!

The beautiful grain of a sanded shell



After painting and assembly you get a finished drum

Name: _____

PLANT A BEAT - GUITAR

Mini Guitar or Banjo

- Materials:
  - Small jar lids
  - Popsicle sticks- one per banjo
  - Loom Bands - four per banjo
  - Washi tape
  - Duct tape
  - Sequins
  - Craft glue

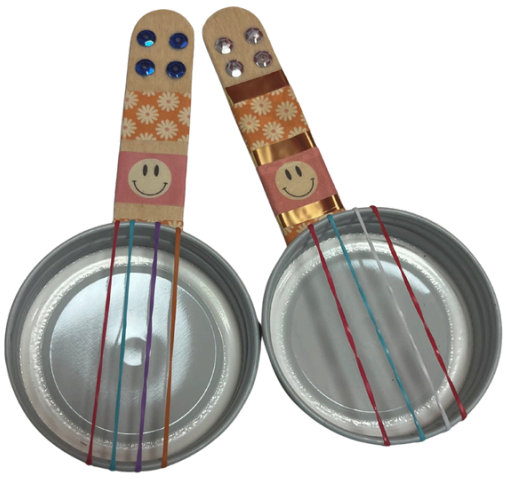
Steps:

- Place 4 loom bands over the lid and secure with a piece of duct tape (avoid hot glue—it melts the bands!).
- Cut the end off a jumbo craft stick and decorate it with washi tape.
- Attach the lid (with loom bands) to the craft stick using a second piece of duct tape.
- Add small dabs of craft glue to stick on sequins, or use plastic gems or markers to draw tuning knobs.

Take a few minutes to think about how guitars are connected to agriculture.
Talk with your classmates and write your ideas in the box below.

MAKE YOUR OWN GUITAR!

Follow the steps above to make your own guitar!
Your guitar will look something like the one in this picture.



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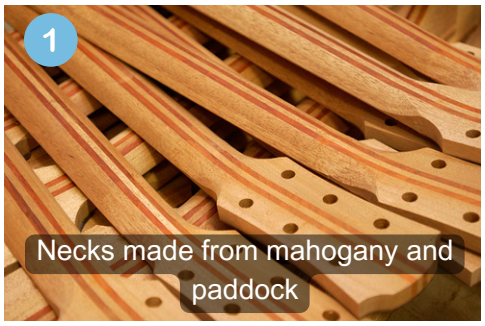
PLANT A BEAT - GUITAR

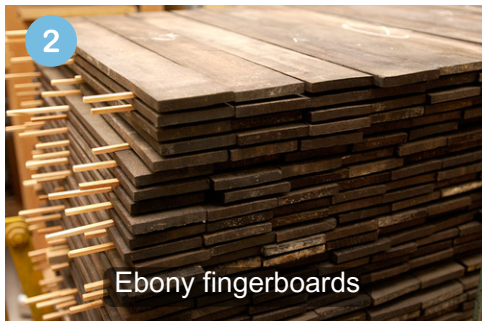
GUITARS & AGRICULTURE

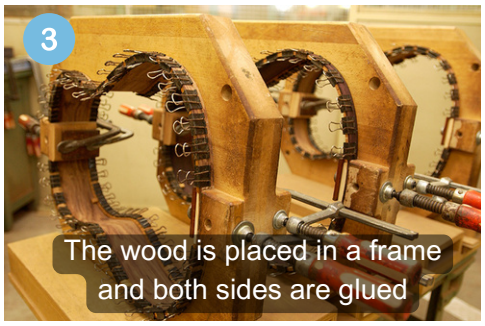
Did you know that guitars are connected to agriculture? Long ago, a man named Christian Martin moved from Germany to the United States. He helped create a new kind of guitar that used steel strings. Before that, guitar strings were made from something called catgut, which came from the intestines of sheep. These strings were soft and stretchy but didn't work well for louder music like country.

Guitars are made from different kinds of wood that grow around the world. Spruce from Germany and North America is used for the front because it helps the sound travel. Mahogany and rosewood from Africa and South America are used for the back and sides. Maple is white and easy to paint, so it is used for colorful guitars.

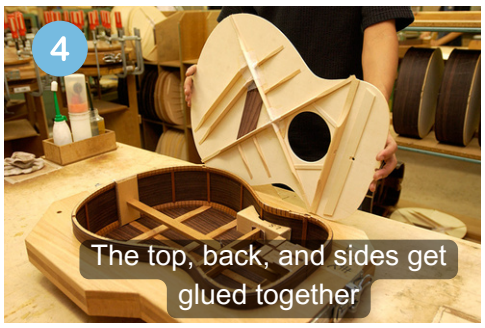
The neck of the guitar needs to be strong but easy to shape, so soft wood like mahogany is used. The fingerboard, where players press the strings, gets worn over time. That's why builders use strong ebony wood—it lasts a long time.







A GUITAR IS BORN!



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PLANT A BEAT - CASTANETS

Castanets

- Materials:
  - Bottle Caps
  - Cardboard
  - Glue
  - Scissors
  - Markers, paint, paintbrushes, etc.

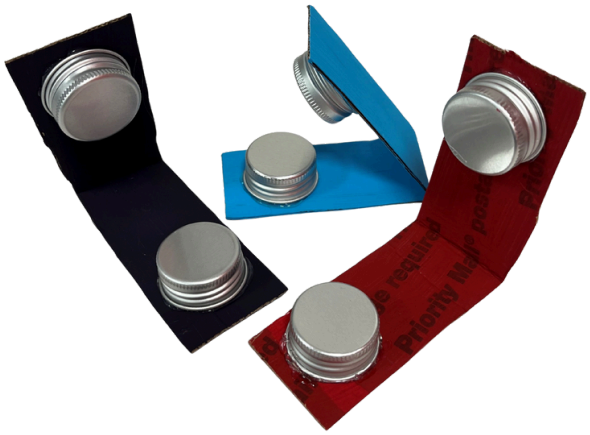
Steps:

- Cut the cardboard into strips approximately 6 inches long and 2 inches wide.
- Decorate the strips however you like.
- Fold each strip in half horizontally (like a hamburger).
- Glue a bottle cap to each end of the strip, on the inside of the fold.
- Once dry, press the ends together with your fingers to make a clicking sound.

Take a few minutes to think about how castanets are connected to agriculture.
Talk with your classmates and write your ideas in the box below.

MAKE YOUR OWN CASTANET!

Follow the steps above to make your own castanet!
Your castanet will look something like the castanets to the right.



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PLANT A BEAT - CASTANETS

Castanets & Agriculture

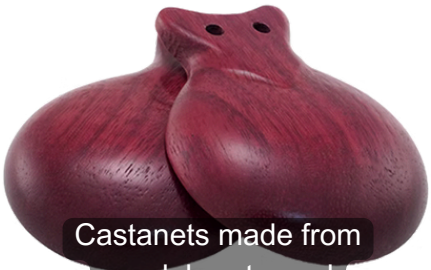
Did you know that castanets are connected to agriculture? Castanets are small instruments that click together to make music. Long ago, people made good castanets from strong wood. They used wood from trees like granadillo, maple, ebony, pomegranate, zebra wood, purpleheart, and oak. These trees grow in warm, rainy places called equatorial forests.

Because these forests are far away and the trees grow slowly, the wood has become very expensive. Some people also want to protect the forests, so they choose not to use this special wood.

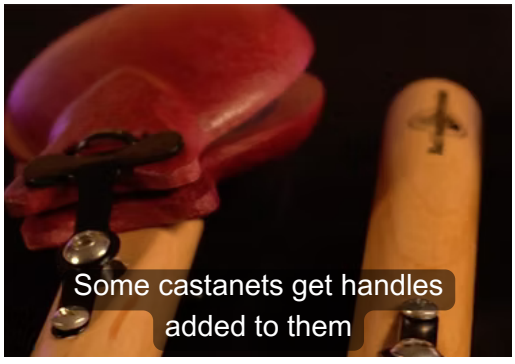
Today, most professional castanets are made from man-made materials. One kind is called Micarta. It is made by pressing layers of paper, cotton cloth, or glass cloth together with glue and heat. Paper and cotton cloth come from plants, so they are agricultural products too! Farmers grow cotton in big fields, and paper is made from trees grown on tree farms. Even though it is not real wood, Micarta sounds a lot like the fancy wood from trees.

Different Types of Castanets

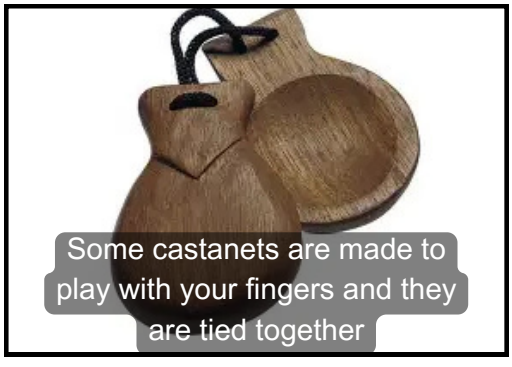
Castanets made from maple wood



Castanets made from purpleheart wood



Some castanets get handles added to them



Some castanets are made to play with your fingers and they are tied together

PLANT A BEAT - MARACAS

Plastic Egg Maracas

- Materials:
  - Plastic Easter eggs
  - Popcorn kernels
  - Plastic spoons (2 per maraca)
  - Tape
  - Markers and/or paint

Steps:

1. Fill Easter eggs with popcorn kernels.
2. Place a spoon on either side of the egg.
3. Tape the spoons tightly around the egg.
4. Tape the spoon ends together to form a handle.
5. Decorate with markers or paint.

Egg Carton Maracas

- Materials:
  - Empty, clean egg cartons
  - Scissors
  - Paint and brush
  - Popsicle sticks
  - Hot glue & glue gun
  - Glitter, stickers, sequins, etc. (optional)
  - Rice, corn, or beans

Steps:

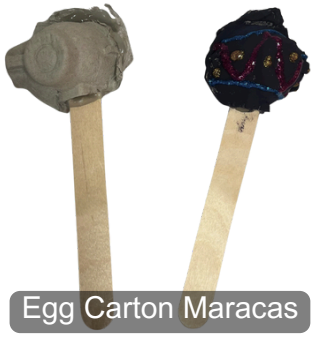
- Cut 2 cups from the bottom of an egg carton.
- Paint the cups and let dry (optional).
- Fill 2 cups with rice or beans.
- Hot glue a craft stick to the rim of each filled cup.
- Add glue around the rim and place a second cup on top.
- Hold firmly until glued.
- Decorate with glitter, sequins, stickers, etc.

Take a few minutes to think about how castanets are connected to agriculture. Talk with your classmates and write your ideas in this box.

MAKE YOUR OWN MARACA!

Follow the steps above to make your own maraca! Your maraca will look something like the ones in these pictures.

Plastic Egg Maraca



Egg Carton Maracas

Name: _____

PLANT A BEAT - MARACAS

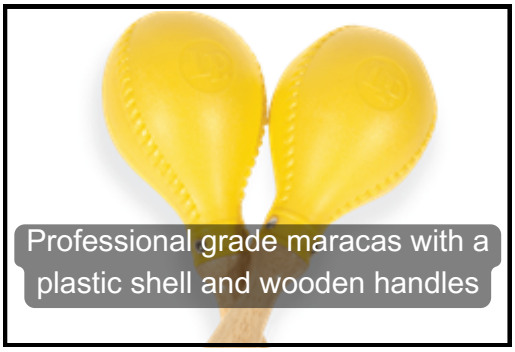
Maracas & Agriculture

Did you know that maracas are connected to agriculture? A long time ago, people made maracas from dried gourds or coconuts. These are fruits that grow on plants and trees. Inside, they put things like dried seeds, beans, or small stones to make noise. All of these items come from farms or nature, which shows how maracas started with agriculture.

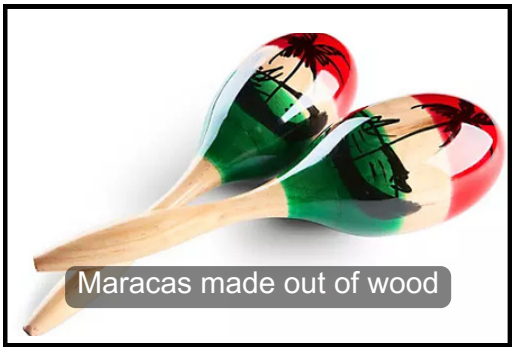
The top part of a maraca is called the bell. It used to be made from hollowed-out gourds or pieces of leather. Leather comes from animals raised on farms. Today, some maracas are made from plastic, but many still use natural materials.

The part inside that makes the sound is called the pellets. These are often dried seeds, beans, or even tiny shells. These items are often grown or found on farms. The handle is the part you hold. It is usually made from wood, which comes from trees. In the past, people carved the handles by hand. Today, they sometimes use machines to shape them. Maracas are a great example of how music and farming work together. Many of the materials come from the earth—like seeds, wood, and gourds.

Different Types of Maracas



Professional grade maracas with a plastic shell and wooden handles



Maracas made out of wood

Wooden maracas made from Siam Oak

Maracas with a stitched rawhide shell

TEACHER RESOURCES

Extension Ideas

- Watch videos on how these instruments are made:
  - How a Yamaha Drum is Made
  - How a Guitar is Made
  - How Castanets Are Made
  - How to Make a Maraca on the Lathe
- Watch videos on how these instruments are played:
  - How Drums are Played
  - How a Guitar is Played
  - How Castanets are Played
  - How a Maraca is Played
- Make your own song with the instruments.
- Discuss further how vibration plays a part in the instruments' sounds.
- Have students play Recycle Round Up on National Geographic Kids to further their recycling knowledge while playing a fun online sorting game.
- Teach students consumption, conservation, and preservation:
  - Divide your students into 3 groups and pass out a small piece of candy to each student.
  - Tell Group 1 that they may eat their candy. They represent consumption – the utilization of the resource.
  - Tell Group 2 that they have to make their candy last by unwrapping it slowly, eating small bites, licking on it, savoring it, etc. They represent conservation – the careful use of the resource.
  - Tell Group 3 that they get to admire their candy, but they cannot eat it. Ask them to admire the wrapper, the shape, the smell, etc. They represent preservation – saving of the resource for the future.
  - Let all students eat their candy when done.
- Read through the IAITC Sustainability Ag Mag.
- Go to agintheclassroom.org to contact your County Ag Literacy Coordinator for free classroom sets of our Ag Mags.