Teacher Scripts

HOW TO USE THE SCRIPTS

Teaching scripts get a bad rap! We know that as teachers, you know the best way to converse with your class. However, scripts can make your life easier by providing examples of explanations that have worked for us. Mix and match, take what's useful and leave the rest. You can use these scripts to introduce material, or to talk about sounds generally.

The scripts are in black, roman type. Teacher notes are indented, grey, italic type.

Vocabulary Words Used within These Scripts

- Materials
- Volume
- Force
- Pitch
- High-pitch
- Low-pitch

SCRIPT 1: SOUNDS AND MATERIALS

Sometimes in science we study things that, in some ways, you already know about. For example, you already know that there are different types of sounds. You know that my voice sounds different than the sound of a door slamming which sounds different than running water out of a faucet.

As scientists, however, we need to think more deeply about things like sound. We need to be able to answer the question: "*Why* are these sounds different?"

As scientists, we also need to be able to have language to talk about scientific things like sounds. We are going to learn about some language we can use to talk about sounds.

When two items hit together, they make a sound.

Teacher Note: Make a loud sound by hitting the table with book or other object to get the kids' attention.

One way to think about sounds, is to think about the different materials that create the sound. A material is what something is made out of.

For the next part, find different items around the room and hit them together. Have the class listen to the different sounds. Are the sounds similar or different? Does the type of material make a difference? One demo students really enjoy is listening to a piece of paper be ripped in half.

Additional suggestions for materials:

- *Crayons, made of wax*
- *Pencils, made of wood*
- *Scissors, made of plastic and metal*
- *Paper, made of paper*
- *Erasers, made of rubber or gum-like material*
- *Cloth, made of cotton/other fabrics.*

Not only does the type of *material* matter, but the size or shape of an object matters, too. For example, think of a xylophone. The keys of a xylophone are all made of the same material. But do all the keys make the same sound? No! What is different about the keys? The size of the keys!

If you have your own xylophone bring it in for the demo—or show a video of someone playing a xylophone online.

The amount of something makes a difference too. Imagine one rock dropping to the ground. Now imagine 100 rocks!

All About Sounds and Vibrations

Teacher Scripts *continued*

SCRIPT 2: SOUNDS AND VOLUME

Sounds can be hard to describe. But one way you can describe a sound is by the *volume*. The volume is how loud or quiet it is.

Everyone clap your hands together *very softly*. Did you all hear that sound?

Now clap your hands together with more force.

Were the sounds different? Yes! One of the sounds was much *louder* than the other. You used the same materials to make the sounds—the material was your hands, or we could say your flesh. Your hands were the same size in both cases, but one time you hit your hands together hard, and one time you hit them together softly, and that made the sound louder or quieter.

Work with your partner to make louder and softer sounds. Try to use "Science Language" or vocabulary while your talk to your partner. Use words like "volume" and "materials". ◂

SCRIPT 3: SOUNDS AND PITCH

Sounds can be hard to describe. But one way we can describe sounds is by talking about pitch. The pitch of the sound is whether it's high or low.

Say this in a high-pitch voice:

For example, I am talking in a high-pitch voice.

Say this in a low-pitch voice:

Now I am talking in a low-pitch voice.

Can you talk to your partner in a high- and low-pitch voice? Make sure to tell your partner that you are using a "high-pitch" or "low-pitch" voice.

Let's think of other sounds that are high or low-pitch.

High-pitch examples:
- *Tea kettle whistle*
- *Chalk scratching on a chalkboard*
- *Rubber shoes squeaking on the floor*
- *Chair legs squeaking on the floor*
- *Dolphins "talking"*
- *Some electrical equipment (think of a whirling drill)*

Low-pitch examples:
- *Lion's roar*
- *Thunder*
- *Gong*
- *Earthquake rumble*
- *Cow's moo*
- *Tuba*

Instruments like a piano can create both high and low pitches.

There are a lot of sounds that are going to be hard to definitively call high- or low-pitch. You can say they are in the middle. ◂

All About Sounds and Vibrations

Teacher Scripts *continued*

SCRIPT 4: SOUNDS AND DISTANCE

Sound are loudest at their source. As a sound travels it gets quieter, until eventually you cannot hear the sound at all. Let's explore this.

If I whisper right near your ear, will you be able to hear what I'm saying?

Try to whisper near the students.

What if I whisper from the other side of the room?

Whisper far away from the students, and see if they can figure out what you are saying.

If I drop a paperclip, can you hear it fall? Does it matter how far away from the paperclip you are?

Try getting the class quiet and dropping the paper clip near them. Then try doing it far away. Drop it from a low distance so the sound is quiet. Try not letting them see when you drop it so they can't just guess if they heard it.

When you play at recess today, see how you hear different sounds when you are close to them, or far away from them.

For more science on this, see our "Ripple" photograph in "Science Background for Teachers" (Section B), under the header "Sound: The Nitty Gritty". ◀