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| **Monday 10/17**  **Objective:**   |  |  | | --- | --- | | 4.01 | Demonstrate how sound is produced by vibrating objects and vibrating columns of air. | | 4.02 | Show how the frequency can be changed by altering the rate of the vibration. | | 4.03 | Show how the frequency can be changed by altering the size and shape of a variety of instruments. | | 4.04 | Show how the human ear detects sound by having a membrane that vibrates when sound reaches it. | | 4.05 | Observe and describe how sounds are made by using a variety of instruments and other “sound makers” including the human vocal cords | | **Pitch and Size (Lesson 7 Part 2 pgs 107-117)**  **FOCUS QUESTION:** How does size affect pitch?  No New Vocab.   * Gather students with their notebooks and demonstrate how to make sound using a paint stirrer.  Hold it flat on the surface of a desk with the end hanging off the edge.  Twang it to make it vibrate. * Direct students to their groups. Prompt students to record their group prediction about how the vibrations can change and what they can do to make that change on the group recording sheet. * Allow students to experiment with the one stick available to their group and record results. * Circulate the classroom and help students notice what they can see of the vibrations and what they can hear. * Gather students to share their observations and discoveries with the class. Guide students to relate this work to that of the washers. * Ask students if they have any questions about sound. Record questions on the chart for future reference. |
| **Tuesday 10/18**  **Objective:**   |  |  | | --- | --- | | 4.01 | Demonstrate how sound is produced by vibrating objects and vibrating columns of air. | | 4.02 | Show how the frequency can be changed by altering the rate of the vibration. | | 4.03 | Show how the frequency can be changed by altering the size and shape of a variety of instruments. | | 4.04 | Show how the human ear detects sound by having a membrane that vibrates when sound reaches it. | | 4.05 | Observe and describe how sounds are made by using a variety of instruments and other “sound makers” including the human vocal cords | | **String Guitars (Embedded Assessment) Lesson 8 pg 119**  **FOCUS QUESTION:** How can size and tension affect the pitch of strings on an instrument?  **No New Vocab…you may want to have a guitar to show, or borrow one from Ms. Keesee.**  **Optional Video Clip:** <http://player.discoveryeducation.com/index.cfm?guidAssetId=31D46E71-D269-4735-BC42-C7832748F2EC>  **Shorter Clip: http://player.discoveryeducation.com/index.cfm?guidAssetId=D0BC7C52-99FA-444D-BBF1-3158BD034871**  Gather students together and play the guitar music (and music of other stringed instruments).  Invite students to describe the music.  Review with the children what they know about pitch and how it changes.  Explain how a stringed instrument is played and ask students how they think the different pitches are made.   * Demonstrate how to assemble a pegboard guitar. (TIP: You will probably want these pre-assembled somewhat since the eye screws and string can be tricky. You may want to get a parent volunteer to help you!) * Divide the class into pairs and have each pair make their own pegboard guitar.  Encourage students to use the different materials available to them. * Circulate the classroom and observe students. Offer assistance if needed. * Gather students to share their guitars with the rest of the class.  As they share, prompt students to explain how they made the strings make different sounds.  Emphasize the differences in size (thickness) of the string. * Ask students to compare the quality of the sounds they produce.  Remind students about the word “timbre” or “quality”. * Prompt students to record their findings in their science notebooks. * Ask students if they have any questions about sound. Record their questions on the chart. |
| **Wednesday 10/19**  **Objective:**   |  |  | | --- | --- | | 4.01 | Demonstrate how sound is produced by vibrating objects and vibrating columns of air. | | 4.02 | Show how the frequency can be changed by altering the rate of the vibration. | | 4.03 | Show how the frequency can be changed by altering the size and shape of a variety of instruments. | | 4.04 | Show how the human ear detects sound by having a membrane that vibrates when sound reaches it. | | 4.05 | Observe and describe how sounds are made by using a variety of instruments and other “sound makers” including the human vocal cords. | | **Other Characteristics of Sound-What is Volume? Lesson 9 pg 131**  **FOCUS QUESTION:** What is volume?   | **Concept/Vocabularly Word** | **Definition** | | --- | --- | | volume | the loudness, strength, or quantity of sound |   **Video Clip:** **http://player.discoveryeducation.com/index.cfm?guidAssetId=577416FF-BD1C-4029-8158-1B06C06DD972**  **Introduction:**  Explain that while you have been discussing ways to make sounds higher and lower you will now be discussing what makes sounds louder or quieter.  If no one has mentioned it, explain that the word “volume” is the word to describe loudness.   Tell students they will be using their instruments to explore volume.   * Have the children start bringing in small cardboard boxes. * Divide students into groups of four - two children play guitars and two play drums.  (You can do this activity with only drums if you wish) * Tell students that you will use your hand to indicate how you want the volume to change.  (You may want to start with one instrument at a time and then combine them.) * Direct students to trade instruments half way through the investigation. * Signal students to stop playing their instruments and direct them to work in their groups to explore volume. * Circulate the classroom and pose questions to focus students’ attention to the way the vibrations change as sounds are played softly or loudly. * Gather students back together to discuss the relationship between the way they played the instruments and the volume of sound. * Lead students to understand that when they played the instruments harder, or put more “force” or “energy” into playing, the sounds were louder but the pitch remained the same. * Refer to lesson 4 when the children used sand on the drum to see vibrations.  Use this example to illustrate the connection between the force of the vibration and the volume. * Prompt students to record their observations of this part of the lesson. * Remind students of their experiences during lesson 3 with their body and sound. * Have the students work in groups to explore the relationship between the vibrations in their vocal cords and volume. * Call for attention and discuss their findings.  Make sure students understand that the more “strength” or “force” used to make the sound, the bigger the volume. * Prompt students to summarize their findings in their notebooks. * Ask the children if they have any questions about sound. * Record their questions on a chart.   \*\*We are not doing the amplification lesson. You may want to discuss sound amplification with your class. |
| **Thursday 10/20**  **Objective:**   |  |  | | --- | --- | | 4.01 | Demonstrate how sound is produced by vibrating objects and vibrating columns of air. | | 4.02 | Show how the frequency can be changed by altering the rate of the vibration. | | 4.03 | Show how the frequency can be changed by altering the size and shape of a variety of instruments. | | 4.04 | Show how the human ear detects sound by having a membrane that vibrates when sound reaches it. | | 4.05 | Observe and describe how sounds are made by using a variety of instruments and other “sound makers” including the human vocal cords. | | **Sound Travels Lesson 11 pg 163**   * **FOCUS QUESTION:** How does sound travel?  | **Concept/Vocabularly Word** | **Definition** | | --- | --- | | transmit | to carry or transfer something across intervening distance between one place or body and another |   **Introduction:**  Watch the video clip: http://player.discoveryeducation.com/index.cfm?guidAssetId=9BBA2BB6-D864-4516-9128-DF977A67D7F8  Display the classroom map then spread children throughout the room.  Have one child stand at the front of the room and speak in a very low volume.  Find out which children can hear the sounds and mark their location on the map.  Ask students what needs to happen so that they can better hear. Repeat the experiment with the volunteer speaking at different levels of volume.   Mark these on the map in different colors.  Ask children to come back up front using a very quiet voice.  This will demonstrate that while the volume doesn’t get louder, their ability to hear it gets better.  Gather students and discuss their observation of the opening activities.   * Review the ways that students made the tuning fork sound go farther. * Direct students to work with a partner to find out if they can make sound travel through materials.  Begin with tapping on the desk and then tapping the desk with one partner’s ear down on the desk. * Challenge students to think of other ways to do this same thing as they walk around the room using a nail and a pencil or pen. * Prompt students to record their findings in their science notebooks. * Gather students together to share their discoveries with the class. * As a class, predict and test the theory of which material will transmit sound the best using the tuning fork. * Ask the children what questions they may have about how sound is transmitted. |
| **Friday** | DATA NOTEBOOK TIME ☺ |