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| **Monday 10/10****Objective:**

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| --- | --- |
| 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 |

 | **Exploring Pitch with Drums (Lesson 5 Part 1 pgs 81-88)****FOCUS QUESTION:** What is pitch and how can it be changed using a drum head?

| **Concept/Vocabularly Word**  | **Definition**  |
| --- | --- |
| pitch  | the “highness” or “lowness” of a sound, determined by frequency |
| tension  | the stress to a material causing extension of the material; tension is increased by pulling or making tighter |
| timbre (quality)  | quality |

Direct students to get the drums they made in the previous lesson and ask volunteers to demonstrate the two drums. Compare and contrast the sounds from the two drums.  Lead students to understand that the difference in highness or lowness of a sound is called pitch.* Review the Sounds chart and decide which sounds have a high pitch or a low pitch.
* Guide students to order drums by pitch.
* Ask students for their ideas about why the drums have different pitches and what makes the pitch high or low.
* Divide the students into groups of four.
* Direct them to make new drums with material provided.  (At least 4 drums per group.)
* Circulate the classroom to provide assistance and challenge students to make their drums have different pitches. Encourage students to experiment and find alternate ways to change the pitch of their drums.
* Lead a class discuss for students to share how they achieved a change in pitch.
* Encourage students to experiment and find alternate ways to change the pitch of their drums.
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| **Tuesday 10/11****Objective:**

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| --- | --- |
| 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 |

 | **Exploring Pitch with Drums (Lesson 5 Part 2 pgs 81-88)****FOCUS QUESTION:** What is pitch and how can it be changed using a drum head?

| **Concept/Vocabularly Word**  | **Definition**  |
| --- | --- |
| pitch  | the “highness” or “lowness” of a sound, determined by frequency |
| tension  | the stress to a material causing extension of the material; tension is increased by pulling or making tighter |
| timbre (quality)  | quality |

* Gather students for a class discussion and have them bring notebooks and drums.
* Select a student to demonstrate the drums from highest to lowest pitch.  Ask a volunteer to explain how the group made the drums with higher or lower pitches.
* Pose questions to encourage students to make comparisons between the pitches and drums.
* Invite each group to share its experiences. Lead students to understand tightness or tension affects pitch.)
* Direct each group to choose one drum to put in front of the class.  As they do so, have students put the drums in order of pitch from highest to lowest.
* Lead a discussion as to why each drum might have a different sound.  (size, tension, materials used, etc.) Help students understand that while the pitch on a drum might be the same, the timbre or quality of the sound may differ.
* Ask students if they have any questions about sound. Record their questions on the chart.
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| **Wednesday 10/12****Objective:**

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| --- | --- |
| 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. |

 | **Exploring Pitch with Rubber bands (Lesson 6 pgs 93-105)****Vocabulary: No new vocab…review previously taught words.*** **FOCUS QUESTION:** How does the increased or decreased tension in a rubber band change pitch?

**Introduction:**Review relationships between vibrations and sound and relationships between pitch and tension. Ask students to explain how they can change pitch in a drum. Review the definition of tension.* Divide class into pairs and challenge students to arrange rubber bands and golf tees so that when plucked the pegboard instruments make sounds with at least 5 different pitches.
* Encourage students to write their findings on Science Notebook pages A and B.
* Circulate the classroom and challenge students to create configurations with segments of the same length that have different pitches.  (This should help students understand that length isn’t the variable here but tension.)
* Lead a class discussion for students to share their findings and to make connections between change in tension and change in pitch.
* Ask students if they have any questions about sound. Record their questions on the chart.
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| **Thursday 10/13****Objective:**

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| --- | --- |
| 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 1 pgs 107-117)*** **FOCUS QUESTION:** How does size affect pitch?

NO NEW VOCABULARY**Introduction:** Gather students together with their science notebooks to review what they have learned about pitch so far. Discuss statements made on Questions and Answers chart and evaluate for accuracy based on what students have learned so far. Invite students to come up with other factors that might affect pitch.  If they come up with size, let them know that today they will experiment with how size affects pitch.  Other suggestions can be recorded on the chart for future research.* Divide the class into groups.
* Direct students to string the medium and large size washers on separate strings and (a) explore different ways to make sound, (b) compare the sound of two different sizes of washers, and (c) describe their findings in their notebook.
* Prompt students to predict the kind of sound the small washers will make.
* Then direct students to add small washers to the investigation.
* Circulate the classroom and encourage students to compare the sounds the washers make.
* Call students together and to summarize their findings and share them with the class.
* Show students a paint stirrer and explain the challenge of holding five stirrers so they make sounds with five different pitches.
* Prompt students to record their ideas to complete the challenge in their science notebooks.
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| **Friday** | DATA NOTEBOOK TIME ☺ |