ENGAGE: ***Connect to Prior Knowledge and Experience, Create Emotionally Safe Learning Environment, Preview New Vocabulary*** **Estimated time: 2 min** **Description of Engage:** *Students begin to think about sound as teacher introduces the lesson by making sounds from various places in the classroom.*		
Teacher's Role	**Teacher Questions**	**Students' Role** ***(representative of student responses)***
Tell students that you will play a guessing game with them. They will close their eyes and you will make a sound. They will point to the place they think you are standing. They will open their eyes and verify that they found the source of the sound. Do this several times standing in different locations.		
Teacher and a partner model <u>Report to a Partner</u> with speaking and listening roles. Teacher and partner demonstrate turn-taking, complete sentences, questions formation, and vocabulary use. Prepare students to speak and listen carefully to be able to report on their own and their partner's answer.	How did you know where I was standing? <u>Report to a Partner</u>: Tell the person next to you how you knew where I was standing.	*"We could hear the sound."* *"I listened to the noise."* *"Escuchamos el ruido."* *(Student Talk: speak and listen to a partner)*
Throughout this component, the teacher formatively assesses student understanding and misconceptions as shown by the various responses. The teacher can acknowledge students' home language use and can provide students with the equivalent English word to support language development.	What did you notice about the sounds I made? <u>Three-Way Interview</u>: Students **ask** their partner what they noticed. Then, the student shares his/her own answers with the partner. Each student reports back to the class about the **partner's** noticing.	***Question****: "What did you notice about the sounds?"* ***Answer****: "Some sounds were low and some were high."* *"Sometimes you hummed and sometimes you whistled."* *"Some sounds were loud, some were not."* *"Loud"* *"Es bajo"* *"Alto"* *(Student talk: speak and actively listen to a partner to share with the class)*

EXPLORE: ***Hands-On Learning, Contextualize Language, Use of Scaffolding (Graphic Organizers, Thinking Maps, Cooperative Learning), Use of Multiple Intelligences, Check for Understanding*** **Estimated time: 20 minutes** **Description of Explore:** *Students investigate how sound travels in different materials by visiting each of the 9 stations.*		
Teacher's Role	**Teacher Questions**	**Students' Role** ***(representative of student responses)***
Today we will observe how different objects make sound: high-pitched sounds like a whistle and low-pitched sounds like humming. Teacher demonstrates how to hit the tuning fork with the mallet. Teacher shows students where the stations are. Teacher explains <u>Numbered Heads</u>: Groups discuss the topic so that any member of the group can report for the group. Teacher calls a number and the student from each group with that number reports for the group.		
This list of questions should be written out at each station to give students time to prepare their thoughts and verbal responses. Also, key vocabulary could be **bolded** to stress the importance of using those specific words in their answers. (*Children can celebrate when a team member uses those bolded, key vocabulary words*) Teacher walks around the room interacting with the students posing questions or	What do you **notice**?	At stations, students discuss concepts, share observations, and answer questions in small groups to prepare for whole class presentation: <u>Numbered Heads.</u> Each group member has a number identifying them to be called on during the activity) *"I notice that the sounds*

helping students with materials and language use. He listens to the students' language and provides the appropriate academic vocabulary (i.e. "that moving here is called vibration").		*are different. The sounds are the same."* *"I notice that some sounds are high and some sounds are low".* *"Not same."* *"Son diferentes."*
<u>Numbered Heads</u>: Teacher calls a number for students to stop and share periodically. At various times, the teacher should stop and have one student share the group's thoughts and observations. For example, "In 1 minute, number 2 will share what she/he thinks causes the sounds" (one minute later) "Number 2, please share with your group what you think causes the sound." Throughout this component, the teacher formatively assesses student understanding and misconceptions as shown by the various responses. The teacher can acknowledge students' home language use and can provide students with the equivalent English word to support language development.	What causes the **sounds**? How are the **tuning forks** the **same**? How are they **different**?	*"The sounds are caused by objects are moving back and forth."* *"The sounds come from shaking."* *"I feel vibrations. That is what caused the sound."* *"Están moviendo."* *"It move."* *"The turning forks are made of the same material. They are the same width and thickness."* *"The tuning forks are different lengths."* *"They produce different sounds."* *"Some tall and some short."* *"No same sound."* *(Student talk: think time, share within a team, and report to the whole class)*

EXPLAIN: ***Listening, Speaking, Reading, and Writing to Communicate Conceptual Understanding*** **Estimated time: 20 minutes**

Description of Explain: *Students report their findings to pairs, groups, and whole class. Teacher provides questions that help students use vocabulary to explain their findings.*

Teacher's Role	**Teacher Questions**	**Students' Role**
Teacher asks students to		

explain their observations within their groups at each station. <u>Roundtable</u>: Teacher and three students show an example of a roundtable discussion. Teacher listens to student responses and assesses student conceptual understanding and language development (both English language and academic language). He, then, purposefully chooses specific groups to report to the class about a station Teacher reviews the explanations	<u>Roundtable</u>: Each student must present a different observation and explanation. They must use key vocabulary. What did you **notice**? What caused the **sound**? Were the sounds the same or different? Why do you think the sounds were the same or different? What did you notice about the material that is **vibrating**?	Students talk among themselves to decide what they will say about the station they have been assigned. The students rehearse the words that they used in the *Explore* component. *(Student talk: answer each of the questions differently using the key vocabulary)* Students take turns explaining the causes of the vibrations to the class.

ELABORATE: ***Connections to Real World, Apply Knowledge to Other Curricular Areas, Group Projects, Plays, Murals, Songs*** **Estimated time: 8 minutes**

Description of Elaborate: *Students apply their knowledge to new domains (an urban outdoor setting). Students practice academic language through song.*

Teacher's Role	Teacher Questions	Students' Role
Teacher interactively reads "Max Found Two Sticks".	What do you think will happen next? Will that sound have a high pitch or low pitch? If Max put his ear on the cardboard box, what do you think he would hear?	Students interact with the reading of the story about Max and the two sticks.

Teacher leads students in singing the "Sound Song".	Think, Pair, Share: Students **think** about what they think will happen next, then **pair** to report to a partner, then the teacher strategically selects certain students (based on what she heard in assessing) to **share** with the class.	*(Student talk: predict, connect, and apply their knowledge with peers using key vocabulary)* Students sing the "Sound Song" to review vocabulary learned in the lesson.

EVALUATE: ***Thinking Maps, Summarize Lesson and Review Vocabulary, Variety of Assessment Tools, Games to Show Understanding*** **Estimated time: 5 minutes** **Description of Evaluate:** *Students demonstrate their learning, while teacher checks for concept understanding and language development.*		
Teacher's Role	**Teacher Questions**	**Students' Role**
Teacher continues to ask questions to promote student thinking about sound, vibrations, and pitch. Teacher models a Think, Pair, Share using the words and structures from the sentences frames that she expects to hear. (Summative Assessment) Teacher listens and summatively assesses student conceptual understanding and their language proficiency.	What do you think causes high-pitched sounds? What do you think causes low-pitched sounds? Which material do you think lets sound travel better--a solid, a liquid, or a gas like air?	Think, Pair, Share: Students **think** about what they noticed, then **pair** to report to a partner, then certain students **share** with the class. Students complete sentence frames to show understanding: _____ vibrations cause _____sounds. _____ vibrations cause _____ sounds. Sound travels better in _____. *(Student talk: think time, share within a partner, and report to the whole class)* Students write their

		responses to the teacher's questions using the sentences frames.

Descriptions of Activity Stations.

Station	Description
1: ruler or meter stick	Students place a ruler or meter stick over the edge of a table and push downward on the ruler or meter stick while listening for the sound it makes. They change the length of the ruler or meter stick that sticks out over the table and listen again. The students observe the sounds made with different lengths.
2: 2 tuning forks of different lengths, 2 mallets, 1 container of water	The students hit one tuning fork with a mallet then quickly put that tuning fork into water. The students hit a different tuning fork with a mallet then quickly put that tuning fork into water. The students make observations and discuss their ideas about what they observed.
3: a rubber band, a plastic bowl, a piece of balloon cut larger than the bowl, tape, several grains of uncooked rice, a large container, a large spoon	The students stretch the cut balloon over the bowl, using the rubber band to hold it in place. They tape the edges of the balloon firmly to the bowl. They then sprinkle a few grains of rice on the stretched balloon. They then hold the container upside-down over the balloon so they can still see the grains of rice as they hit the container with the spoon. The students then make observations of what happens to the rice.
4: coat hanger, strings	The students make a "coat-hanger clanger". To do this, they need string or thread and a coat hanger. They will tie two pieces of string or thread to the base of the coat hanger. The students then will strike the coat hanger against a hard object (e.g., the edge of the table, a chair, the wall) and listen to the sound. The teacher then asks the students to wrap the string or thread around the index finger of each hand then put their fingers against their ears so the hanger hangs freely. They then hit the hanger against the hard object once more and make observations that they discuss with each other.
5: CD player, CD with music with a lot of bass	The teacher plays a song on a CD player. With two hands, the students hold an inflated balloon up to the speaker as the song plays. They take steps backward away from the CD player and continue to make observations that they discuss with each other.
6: Partially-filled plastic bottles	The students blow across the top of partially filled plastic bottles and listen to the sounds made. Each bottle is filled to a different height with water. Students make observations of the sounds that they hear.
7: 2 tuning forks of different lengths, 2 mallets	Students hit different tuning forks with a mallet then place the tuning fork near their ear. Students notice the different lengths of the tuning forks and make observations about the different sounds made by each.
8: small plastic cups with fishing line attached, partially-filled water bottles connected to the	Students pluck the fishing line connected to the small plastic cups. They change the length of the fishing line and listen to the different sounds made each time when they pluck the new length of fishing line. They make observations about the sounds that they discuss with each other.

fishing line	