



DIP TiPS Educational Activity

Objective

This activity teaches how to describe features of sound events. The group will first learn six words related to sound. Then, they will play a game to show their understanding by creating sound events.

Ages	10+
Group Size	10–20 students
Setting	Indoors or outdoors
Duration	45–60 minutes
Subject(s)	Science, Special Skills

Overview

Talking about unfamiliar sounds can be tricky. Even though we listen all the time, it's often hard to find the right words to describe what we hear. If we know the source, we can simply name it (like "I hear a frog"). But if the sound is unfamiliar, we have to describe its traits (like "I hear short, high-pitched clicks"). Music vocabulary can sometimes help, but it doesn't always work for natural sounds. To describe unfamiliar sounds, we need to learn and practice specific vocabulary.

This first part of this activity uses a mnemonic device to help remember words for describing sounds. It focuses on six features: duration, intensity, pitch, timbre, pattern, and speed. Everyone can remember these with the mnemonic "DIP-TiPS." Working on this in a group helps everyone develop a shared understanding of these words.

In the second part, the group will practice making sounds that match prompts. You can decide to make this part competitive or non-competitive. The practice gives quick feedback and sparks lively debates. The leader should keep the activity both fun and organized for the best learning experience.

Logistics

No materials are necessary for this activity. Take time to clarify any terms the group may not know. You might consider creating flash cards or small signs with the vocabulary from the table in Step 3 printed on them. This would help attendees who are hard of hearing. It would also make your vocabulary presentation multimodal, a practice that helps different types of learners.

If you are working with a younger audience, you may want to shorten the list of features. Even with the first three features (DIP), there is plenty to say about sounds..

Important Vocabulary

Duration	The time interval between the beginning and end of a sound event. Small intervals are called “short”, while larger times seem “long”.
Intensity	Increases in intensity will make a source sound seem “louder”, while decreases will make it sound “softer”. This term has several synonyms like volume or loudness.
Pattern	Applies only to repeating sound events. During repetition, other traits in DIP-TiPS can vary to form patterns. Stable patterns will seem “regular”. Unstable, changing ones will seem “irregular”.
Pitch	The most prominent frequencies from a vibrating object will lead to our perception of its pitch. Even for non-musical sounds, we can use the perception of pitch to organize sounds from “low” to “high”.
Sound event	A sound from a specific source, such as birds calling from overhead or waves crashing on the shore.
Soundscape	The sounds heard in a particular location, considered as a whole.
Speed	Applies only to repeating sound events. The pace of these events determines their apparent speed. Repetitions seem “fast” when the events in close succession. They will seem “slow” when there are longer intervals between events.
Timbre	How complex are the frequencies within a sound event? A sound is “pure” if its timbre is focused on a single tone, like whistling. It’s “noisy” if the timbre is not focused, like shushing someone.

Procedures

The word “sound” in English has many applications. We could be talking about the sound of a place, or the sound of an animal, or raw acoustic energy that radiates through air and water. So, it is important to first clarify what we mean when we start talking about sound. This activity starts with broad concepts and then narrows to greater detail. If you’ve done listening exercises with a group, you can skip or shorten any redundant early steps. Try to build on previous discussions.

Step 1. Soundscape or Sound Event

Say

“All sounds at a particular location considered as a whole is known as its “soundscape”. The soundscape is part of what gives natural and historic sites their unique character. The National Park Service works to protect these soundscapes.”

The point is that saying “the sound of the park” is less clear than saying “the soundscape of the park.”

Procedures (continued)

Say

“The sound from a specific source is known as a “sound event,” such as birds calling from overhead or waves crashing on the shore. The soundscape has many sound events. They sometimes work together and sometimes clash.”

Emphasize that sound events are building blocks for the soundscape. The source may be unknown. But, asking someone to “describe that sound event” is clearer than saying “describe that sound.”

Confirm the group knows the difference between soundscape and sound event

Ask

- What is your favorite soundscape? Is there a place that you like to sit and listen quietly?
- Are there any sound events that you don’t like or make you uncomfortable?
- Take a minute to listen quietly to the soundscape at your present location. What sound events are most prominent in this soundscape? Are there any unknown sound sources?

Step 2. Listening Modes

Whenever we encounter new sound events, people use different strategies as they try to make sense of what they hear. Film sound scholar Michel Chion has proposed three common listening modes. These modes provide helpful language for exploring natural soundscapes. Introduce them now to help clarify later questions or conversations.

The first is also the most common: listening for source identification.

Ask

“When you hear a new or unfamiliar sound event, what questions do you ask yourselves?”

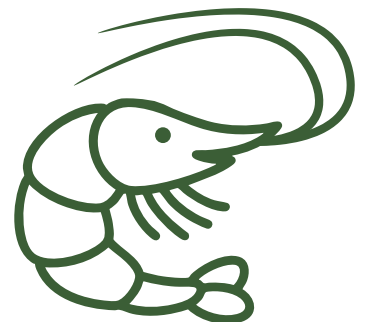
Sooner or later, someone will say, “What was that?” This is the key question in source identification. Take a moment to draw attention to three or four familiar sounds nearby. Make sure everyone agrees on their sources. In this mode, we are concerned with what is making the sound.

The second mode interprets messages or signals: listening for meaning.

Fun Fact

Although tiny in size, “Snapping shrimp” or “pistol shrimp”, such as those found (and heard) in places such as Canaveral National Seashore and Dry Tortugas National Park, Florida, make one of the loudest animal noises in the ocean. They snap their claws so fast that they can create fast, tiny bubbles, which they use to stun prey. The “pop!” of the bubbles can reach 218 decibels. That’s louder than a pistol shot!

- Ocean Conservation Research



Procedures (continued)

Ask

“Can we list three or four different sound alarms that we hear in daily life? What do each of them mean?”

Examples might include “incoming text alert”, “emergency vehicle siren”, or “kitchen timer ding”. You can connect these human-made sounds with some natural examples. Birds, frogs, and other animals often use different calls to signal each other for specific purposes. This could be a predator warning or approaching weather. In this mode, we are more concerned with meaning than source.

The third listening mode is the most challenging: listening for features. Start by referring to a specific sound event that someone has already mentioned during the activity. Ask a volunteer to describe the features of that sound (not its source or meaning).

Ask

“What are two features of that sound event that we can all agree on? (Or you can frame it as a challenge) How many specific features of that sound event can we all agree on without any repetition?”

How ever you frame the task, emphasize the importance of agreement here. Tell the group that agreeing on specific features helps us. It ensures we are talking about the same sound, especially when the source and meaning are unknown.

Step 3. Introducing DIP-TiPS

You are now ready to introduce the “DIP-TiPS”. Speak the following terms one at a time and ask everybody to repeat after you:

- Duration
- Intensity
- Pitch
- Timbre (in the USA, typically pronounced “tam-burr”)
- Pattern
- Speed

Say

“These are six common features that we can use to describe individual sound events. To make them easier to remember, we have developed a mnemonic device (or acronym).”

Walk everyone through the first letter of each word. Explain how they form the words DIP-TiPS. By far, the trickiest word in the group is “timbre”. Its spelling and pronunciation come from the French language. Try not to get slowed down by these details during the initial introduction. Instead, focus on remembering these six words.

As you expand your explanation of the DIP-TiPS here, use the Important Vocabulary section. Do three things. First, emphasize the primary terms for these six features. After all, the acronym is only useful if it reminds us of the words represented by each letter. Second, introduce a short question that we are trying to answer for each feature. These questions will help the group begin to describe that specific feature of a given sound event.

Procedures (continued)

Finally, introduce the secondary terms that describe the extremes for each feature. These extremes help listeners consider the variation within each feature. They also provide ways to describe differences or changes in sound events. This material is summarized in the following table:

Feature	Question	Extreme 1	Extreme 2
Duration	How much time?	Short	Long
Intensity	How loud?	Soft	Loud
Pitch	How high?	Low	High
Timbre	How noisy?	Pure	Noisy
Pattern	How organized?	Regular	Irregular
Speed	How fast?	Slow	Fast

Close out this step by speaking the terms one more time. Ask the group to repeat after you:
Duration, Intensity, Pitch, Timbre, Pattern, Speed.

Step 4. Creating Sound Events

The best way to learn the concepts behind DIP-TiPS is by practicing. The last step in this activity does that by encouraging creativity. The group will receive a set of sound features (like low pitch and long duration). Their job is to create sounds to match those descriptions. There's no single "right" way to make a matching sound. This is where creativity comes in.

A table of 16 paired descriptions is provided in the field notes to make it easy to give prompts. You can simply ask someone to pick a number. You also can also create your own method, like writing features on paper and drawing them randomly from a bag.

There are two ways to run this activity: non-competitive or competitive.

Non-Competitive Option

Call on volunteers to create a sound based on a prompt from the table. After they present, the whole group discusses how well the sound matches the description. As the leader, ensure feedback is constructive and supportive. The discussion will help clarify terms and ideas. This option works best for groups who don't know each other well.

Competitive Option

Divide the group into teams of 3-4. For each round, give a prompt from the table. Give the teams one minute to plan a sound that fits the description. After each team presents their sound, you can assign points. We recommend two for the most original sound, one for sounds that fit the description, and zero for sounds that don't match. Tally points over multiple rounds to find a winning team. Be sure to keep the game fun and relaxed, and focus on positive feedback to reinforce learning. This option is great for groups that already know each other or want to build stronger connections.

Both options are designed to help people learn vocabulary while having fun!

Procedures (continued)

Final Thoughts

As you explore the different DIP-TiPS, there are a few key points to keep in mind. You can talk about these together at the end or bring them up throughout the activity:

- **DIP-TiPS Work Together:** No sound event is made up of just one feature. For example, a sound with speed will also have a pattern, and pitch always comes with duration and timbre.
- **Recognizing Sounds:** The way DIP-TiPS combine makes sounds unique. For instance, a bird's call is easy to recognize because it has a special mix of pitch and pattern.
- **Describe or Compare:** You can describe a sound event on its own (like "It's 2 seconds long") or compare it to another sound (like "It's shorter than the other sound").
- **It's Okay to Struggle:** Some features, like timbre or pitch, can be tricky to understand at first. Don't worry if it takes time—practice will make it easier.
- **Start with What's Clear:** Focus on the DIP-TiPS you understand best. Even if you only mention two or three features, it's usually enough to start a discussion about the sound.

Fun Fact

Sound travels faster in water compared with air because water particles are packed more densely. Thus, the energy the sound waves carry is transported faster. This should make the sound seem louder.

Scientific American



Resources

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Acknowledgments

Created by Dr. Nathan Wolek at Stetson University, Eve Payor at Atlantic Center for the Arts, and Edith Stein at the Florida School for the Deaf and Blind. The Young Sound Seekers program has been supported by the Natural Sounds and Night Skies Division of the National Park Service.





DIP TiPS Field Notes

Step 1. Soundscape or Sound Event

- Explain that the overall sound at a location is called its “soundscape”. This contributes to the unique character of natural and historic sites.
- Introduce “sound event” as a specific sound from a source, like birds or waves. These are the building blocks of a soundscape.
- Use discussion questions to check if the group can tell the difference between “soundscape” and “sound event”.

Step 2. Listening Modes

- Describe the different strategies people use to make sense of new sound events.
- The first mode is “listening for source identification.” The group considers, “What was that?” when encountering an unfamiliar sound.
- The second mode is “listening for meaning.” The group identifies specific alarms or natural calls that act as signals.
- The third mode is “listening for features.” The group agrees on specific traits of a sound. They focus on its characteristics, not its source or meaning.

Step 3. Introducing DIP-TiPS

- Introduce the six common features used to describe sound events. Emphasizing the DIP-TiPS acronym and focusing on these primary terms: Duration, Intensity, Pitch, Timbre, Pattern, Speed.
- Explain that each feature corresponds to a key question. Help the group describe specific traits of sound events.
- Mention secondary terms for each feature’s extremes. This will help everyone understand variations and changes in sound events.
 - Duration: How long does it last for?
 - Intensity: How loud or soft is it?
 - Pitch: How high or low?
 - Timbre: How pure or noisy?
 - Pattern: Is it a regular or irregular pattern?
 - Speed: How fast or slow is it?

Step 4. Creating Sound Events

- To solidify DIP-TiPS concepts, ask the group to make sounds that match given features.
- Use the descriptions as prompts. Or, explore other random prompt-generation methods.

Non-Competitive Option

Call on volunteers to create sounds. Then, have a group discussion and give feedback.

Competitive Option

Organize teams. Provide prompts and give teams one minute to create sounds. Assign points based on originality and accuracy. Play multiple rounds, tally points, and determine a winning team. Keep the atmosphere fun and educational.

Final Discussion

- DIP-TiPS are never found in isolation; sound events always combine features.
- Specific combinations of DIP-TiPS make sources recognizable. For example, unique bird calls are defined by pitch and pattern.
- Don't get discouraged if some features are difficult to understand. Focus on the DIP-TiPS you hear clearly and practice to improve.

Descriptions

Mix and match the following to describe the sound event.

Duration

- Short
- Long

Intensity

- Soft
- Loud

Pitch

- Low
- High

Timbre

- Pure
- Noisy

Pattern

- Regular
- Irregular

Speed

- Slow
- Fast