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# Explore Bird Sounds

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**Education**

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# Communicating Without Words

- Pair up and sit or stand with your backs to one another. Don't let your partner see your cards.
- Your job is to convey the message or idea on your card using only single syllables (ba, da)
- Your partner's job is to jot down what they think is the message and why.
- Take several turns each before revealing any of the cards.

# Communicating Without Words

- What were some ways that you varied your voice in order to communicate?

# Seeing Sounds

- Take a blank index card and a pen or pencil.
- Listen to the sound carefully.
- Draw how you would represent the sound if you wanted to describe it visually.

# Seeing Sounds

- Let's see some examples!

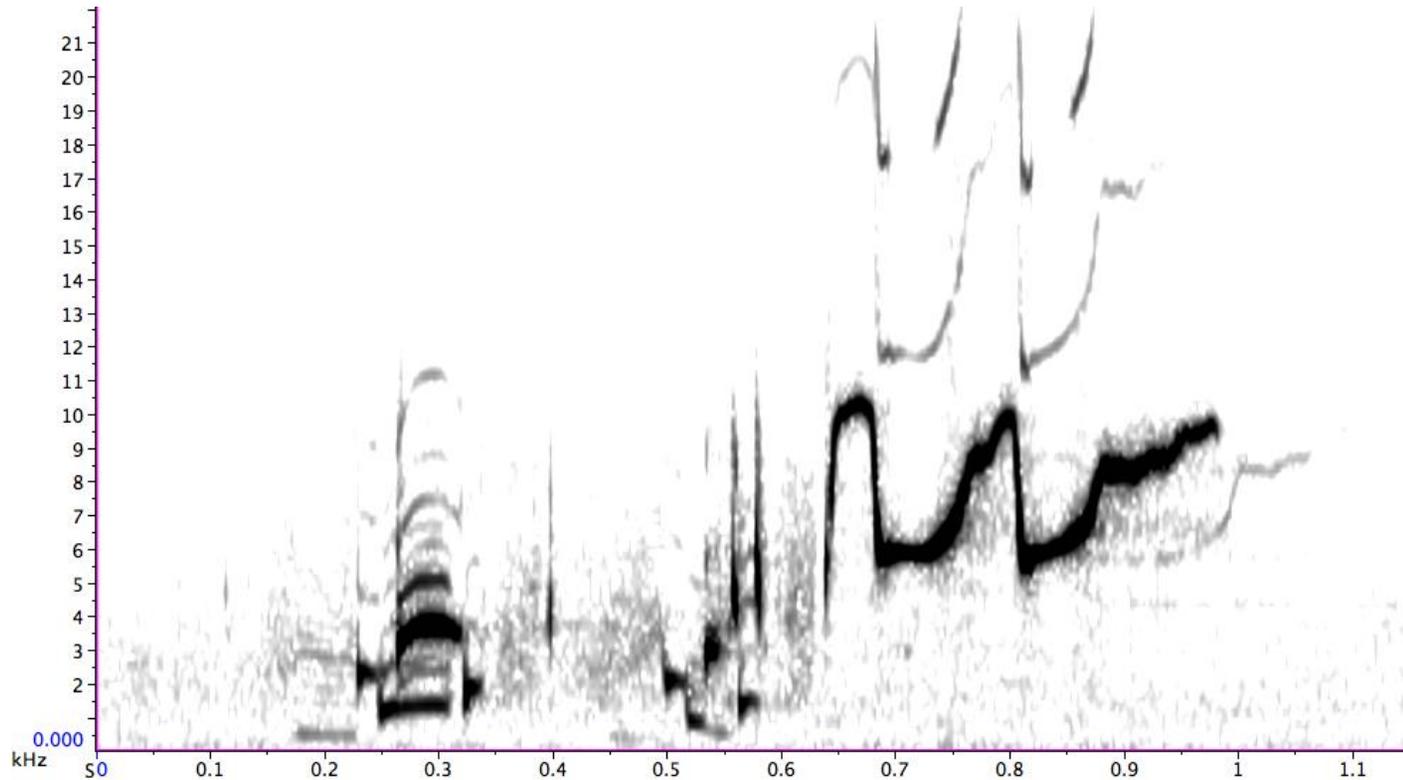
# Seeing Sounds

- Have you seen any other representations of sound?

# Seeing Sounds

- What is the horizontal axis in musical notation?
- The vertical axis?
- Did anyone draw something similar?

# Seeing Sounds

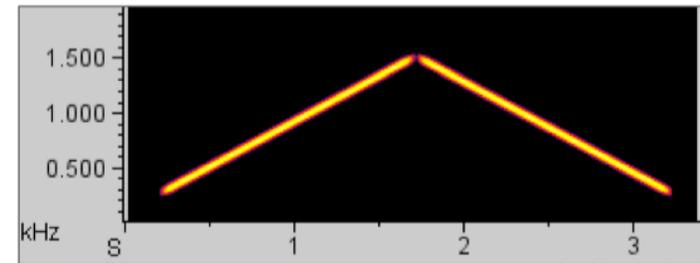


Brown-headed Cowbird

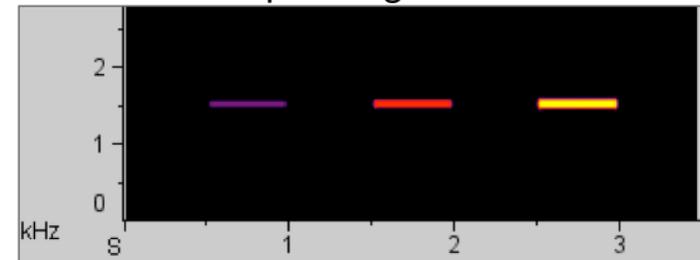
# Seeing Sound

- These images show how sounds of different frequency, amplitude, and duration appear in spectrograms.
- These sounds were produced by a computer.

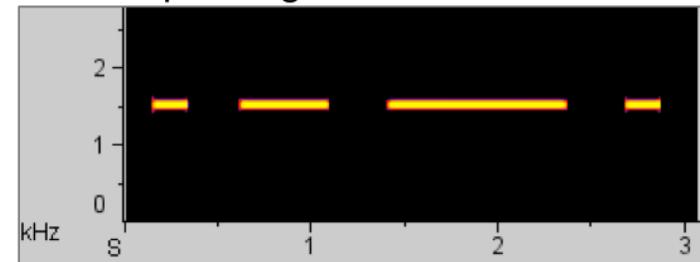
Higher sounds appear higher on the spectrogram:



Louder tones are shown in a brighter color on the spectrogram:

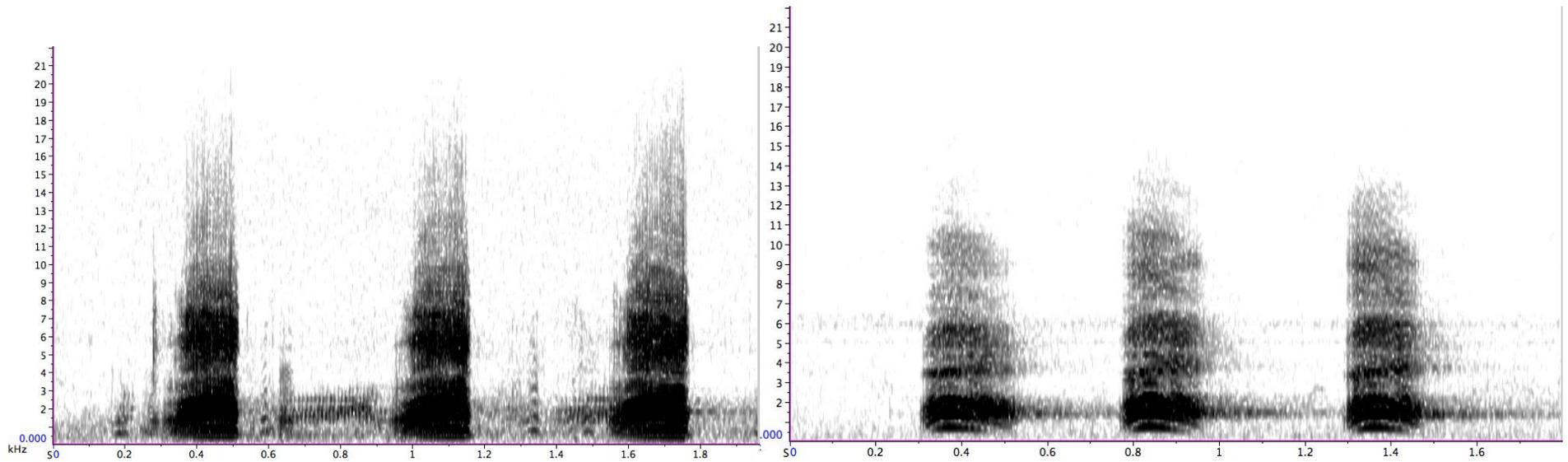


Longer tones appear as longer marks on the spectrogram:



# Seeing Sounds

- How is a spectrogram similar to musical notation?
- How is it different?



American Crow

Mallard

# Celebrate Urban Birds Sounds

- Everyone, take a pen and a note card.
- For each sound, write the species name on the back.
- Draw your best estimate of what the spectrogram would look like on the front.

# Celebrate Urban Birds Sounds

- Find a partner.
- Shuffle your cards and have one person hold up a picture.
- Your partner must guess the species by finding their own similar drawing.
- Keep track of how many you guessed correctly on the first, second, or third try.

# Celebrate Urban Birds Sounds

- How did you interpret sounds compared to your partner? How similar or different are the drawings?