Episode 2
The Brass Family
The long and short of instrument design and performance

1 OVERVIEW

Reeling from an experiment gone awry, Quaver blasts into an exploration of the members of the brass family. Quaver discovers how they are made, played, and their unique sounds. Along the way, he stumbles into a symphony performance, takes to the field with a marching band, and attends his own private brass quintet concert.

LESSON OBJECTIVES

Students will learn:
• The four main brass instruments: trumpet, French horn, trombone, and tuba.
• The different ranges, timbres, and sounds of each instrument.
• The technique employed to play a brass instrument.
• The various way brass sections are utilized in the orchestra.
• The uses of brass instruments from historical to present day.
• The unique and blended range, timbre, and sound of a brass quintet.

Vocabulary
Timbre
Mouthpiece
Embouchure
Tubing size
Tubing length
Valves

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**LESSON INTRO** Introducing the episode

Play a fanfare on an instrument or a sheet of paper rolled into a cone. Ask what students would expect to happen next if they heard a fanfare on a TV show. (Examples: the entrance of a king or queen, a special announcement, or introduction of game show contestants.) Fanfares aren’t played quietly; they are loud. Why? To get everyone’s attention.

The instruments associated most with these big introductions are brass. Why brass? Brass instruments produce a very loud sound that travels a long distance. Five hundred years ago armies would use brass instruments similar to trumpets to pass messages from one end of a battlefield to the other.

Have three or four paper trumpets ready and get students to play a fanfare announcing that today’s episode will explore brass instruments on Quaver’s Marvelous World of Music.
Discussion Points

- Name the four instruments most associated with the brass family. 
  *trumpet, French horn, trombone, and tuba*

- What phrase did Quaver use to talk about the sounds created by short and long tubing? 
  *"big, low; small, high"*

- What are valves used for on brass instruments? 
  *to redirect air along shorter or longer paths*

- What is an embouchure? 
  *the shape of the mouth on the mouthpiece*

3 PLAY EPISODE

Blasts Of Brass

Purpose: Listening to the variety of styles and sounds of brass instruments 

Play these selections, which exemplify the various ways brass instruments contribute to music. Included are samplings from Dixieland Jazz *When the Saints Go Marching In* (Track 1), ceremonial music *Fabulous Fanfare* (Track 2), and classical *Wagner’s Ride of the Valkyries* (Track 3). Ask students to describe how the brass instruments are used and sound. 

*Note: Brass sounds can be warm and inviting as well as bold and loud.*

Materials Needed

- Mouthpiece
- Colored pencils

Embouchure Practice

Purpose: The physicality of playing brass instruments 

Replay Quaver’s Very Low Pitch Experiment, then show your students a brass mouthpiece. Have each try to form an embouchure and make a sound. Have students vote to determine whose performance was strongest. 

*Note: Use disinfecting wipes to thoroughly clean the mouthpiece for each new performer.*

Following Orders

Purpose: Basic composing and how we can use music to communicate 

Before there were microphones to make our voices louder, brass instruments were used to send messages over long distances. Pair up students and have each team create four different tunes for each of the following directions: left, right, backwards, and forwards. Allow a few teams to demonstrate these musical commands to the group. Have each set of partners start at opposite ends of the room and see how well their commands work. The tunes can be worked out vocally or on Orff instruments.

Instrument Exercises

Purpose: The science of sound production 

Use Orff or other instruments with students to study the relationship between the length or thickness of the resounding material and the pitch. Shorter metal blocks, shorter strings on a piano, as well as thinner strings on a guitar play higher notes. Compare the instruments available in the classroom to the pictures of the really low tuba on the IWB. The tuba produces a low sound because of its wide tubing.
Brass Pictures

Purpose: Familiarity with the look and shape of the four brass instruments
Distribute the provided worksheet to the class which consists of the four most prominent brass instruments. Discuss with students situations where each of these brass instruments might be heard, have them draw pictures to represent these situations.

VIDEO REPLAY
Brass Quintet

Purpose: Focused listening skills
Listen again to the brass quintet, have students close their eyes, and see if they can pick out the different instruments without looking. With practice, the ear can be trained to recognize various instrument sounds.

5 WEB ACTIVITIES

EarIQ
EarIQ is an exciting, aural, multiple choice extravaganza. In games labeled pitch, intervals, and chords, students try to distinguish among a variety of sounds, including brass instrument sounds. Transforming students into music recognition maestros is what EarIQ is all about!

Metro / Style Venues
Students can take the metro to the Jazz Club venue to listen to Dixieland Jazz, or go to Blues Street, Classical Music Hall, Latin Club, or others. All of them contain great examples of brass family instruments in action.
Imagine The Scene

Ask students to look at the four scenes on the worksheet. Then play the four audio tracks. Ask students to match the audio clip to the scene they think it represents and also write the name of the featured instrument.

Track 4 Trumpet Call – trumpet: a charge leading into battle
Track 5 Trombone Tromp – trombone: a funny sketch with a clown
Track 6 The Dawn – French horn: the sunrise
Track 7 Scary Tuba – tuba: a mysterious event

Play the music again and have students write down two other scenes that come to mind as they listen to each piece.

My Instrument File

Purpose: How brass is one group among a number of different instrument families
Have students take this worksheet home, color the instruments, and fill in the blanks. They can add it to their Quaver instrument file compiled over the course of this unit.

My Instrument Diary

Purpose: Recognizing brass instruments in the music around them
Over the course of one day, have students write down every time they hear a brass instrument. Remind them that brass instruments can be heard in everyday situations, such as in stores, on the street, on TV, or even in their favorite video game.
Science
Based on Quaver’s VLPE experiment, supply students with a stiff card, duct tape, toilet rolls, plastic tubing, or hose pipe. Give them the diameter of the brass mouthpiece you bring to the class. Ask them to design a piece of tubing using their supplies that will become the body of that mouthpiece. Then they will adapt their mouthpiece to the different bodies that have been constructed and play this new instrument. Discuss how the different shapes and sizes of what have been constructed affect the sound that is produced. Discuss how different materials vibrate differently, creating different sound waves.

Note: Why not ask parents to come in to your class for this activity and help out with construction.

History Tracks 8 & 9
Find pictures or illustrations of musical instruments used by troops at wartime. Ask students why they think those particular instruments were chosen. Explain how drums, piccolos, and brass instruments were utilized. Drums are loud and keep the soldiers marching at a specific tempo, while brass and piccolos are used because of their high, piercing pitches, which can be heard from far away. Listen to Piccolo and Drum Fife (Track 8) noting the steady tempo.

Final Call (Track 9) is played to honor soldiers who have died in battle. Have students listen and describe how this historical piece makes them feel.

Art Track 3
Brass instruments are fascinating studies in shape. Challenge students to design and name a new brass instrument. Give each student the opportunity to describe the new instrument’s features, explain how it is played, and suggest its best uses. Based on its size and shape, ask if it will have a low, medium, or high pitch.

To inspire the students, play Wagner’s Ride of the Valkyries (Track 3) while they draw.

Materials Needed
- Stiff card
- Duck tape
- Toilet rolls
- Plastic tubing
  or hose pipe

Qtrips
Invite a brass musician to visit the class. Even a player with basic proficiency will engage students, sparking a desire to learn more about the instrument.
Beyond Basic Brass
Purpose: Looking at the extended brass family
This episode focuses on the four primary brass instruments. Extend students’ knowledge by introducing other brass family instruments such as the cornet, bugle, sousaphone, and piccolo trumpet. Based on the design of each instrument, invite students to speculate about its sound and uses. For example, the bugle is a trumpet without valves; the embouchure alone determines the notes produced.

VIDEO REPLAY
Brass Players
Purpose: Sound production
Play the section where the brass players demonstrate their instruments.
- What makes their mouthpieces different? What does this enable them to do?
- How are the vibrations of the lips different in other mouthpieces?

Note: The trumpet and horn mouthpieces require a faster vibration of the lips, while the tuba’s larger mouthpiece enables the player’s lips to vibrate slower. Quicker vibration produces a higher sound, and a slower vibration produces a lower sound. This even works with a piece of paper. Waft it slowly and you get a lower sound, waft it quickly and the pitch gets higher.

With or Without Tracks 10 & 11
Purpose: Hearing the difference brass makes in a song
Listen to Give It Up! for the Brass Family Part I (Track 10). Have students describe the sound and feeling of the music. Then play Give It Up! for the Brass Family Part II (Track 11), the same song again, but with added brass section. Discuss the difference that brass instruments make to the overall piece. Make a list of comparative emotional words (such as sad or happy) that characterize the second version.

Brass instruments are very versatile, generating sounds that are energetic and punchy or mellow and calming.
Featured Instruments

- Trumpet
- Trombone
- Tuba
- French Horn
- Bugle
- Orff Instruments

TEACHER NOTES