

Georgia Performance Standards

SCIENCE

GRADE 3

S3CS5: Students will communicate scientific ideas and activities clearly.

GRADE 4

S4P2: Students will demonstrate how sound is produced by vibrating objects and how sound can be varied by changing the rate of vibration.

a. Investigate how sound is produced.

b. Recognize the conditions that cause pitch to vary.

GRADE 5

S5CS5: Students will communicate scientific ideas and activities clearly.

MATHEMATICS

GRADE 3

M3A1L: Students will use mathematical expressions to represent relationships between quantities and interpret given expressions.

M3D1: Students will create and interpret simple tables and graphs.

M3P3: Students will communicate mathematically.

M3P4: Students will make connections among mathematical ideas and to other disciplines.

GRADE 4

M4D1: Students will gather, organize, and display data according to the situation and compare related features.

M4P3: Students will communicate mathematically.

M4P4: Students will make connections among mathematical ideas and to other disciplines.

GRADE 5

M5D2: Students will collect, organize, and display data using the most appropriate graph.

M5P3: Students will communicate mathematically.

M5P4: Students will make connections among mathematical ideas and to other disciplines.

MUSIC

GRADE 3

M3GM.2: Performing on instruments, alone and with others, a varied repertoire of music

M3GM.4: Improvising melodies, variations, and accompaniments

M3GM.6: Listening to, analyzing, and describing music

GRADE 4

M4GM.2: Performing on instruments, alone and with others, a varied repertoire of music

M4GM.4: Improvising melodies, variations, and accompaniments

M4GM.6: Listening to, analyzing, and describing music

GRADE 5

M5GM.2: Performing on instruments, alone and with others, a varied repertoire of music

M5GM.4: Improvising melodies, variations, and accompaniments

M5GM.6: Listening to, analyzing, and describing music

ENGLISH LANGUAGE ARTS

GRADE 3

ELA3R2: The student acquires and uses grade-level words to communicate effectively.

ELA3W1: The student demonstrates competency in the writing process.

ELA3W2: The student writes in a variety of genres, including narrative, informational, persuasive, and response to literature.

ELA3C1: The student demonstrates understanding and control of the rules of the English language, realizing that usage involves the appropriate application of conventions and grammar in both written and spoken formats.

ELA3LSV1: The student uses oral and visual strategies to communicate.

GRADE 4

ELA4W1: The student produces writing that establishes an appropriate organizational structure, sets a context and engages the reader, maintains a coherent focus throughout, and signals a satisfying closure.

ELA4W2: The student demonstrates competence in a variety of genres.

ELA4LSV1: The student participates in student-to-teacher, student-to-student, and group verbal interactions.

GRADE 5

ELA5C1: The student demonstrates understanding and control of the rules of the English language, realizing that usage involves the appropriate application of conventions and grammar in both written and spoken formats.

ELA5LSV1: The student participates in student-to-teacher, student-to-student, and group verbal interactions.

National Standards

ENGLISH LANGUAGE ARTS

NL-ENG.K-12.12: Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

SCIENCE

NS.K-4.2 PHYSICAL SCIENCE: Students should develop an understanding of properties of objects and materials.

NS.5-8.2 PHYSICAL SCIENCE: Students should develop an understanding transfer of energy.

MATH

3-5.DATA ANALYSIS AND PROBABILITY: Represent data using tables and graphs such as line plots, bar graphs, and line graphs

MUSIC

Standard 4: Composing and arranging music within specified guidelines

Standard 6: Listening to, analyzing, and describing music

Standard 7: Evaluating music and music performances

Standard 8: Understanding relationships between music, the other arts, and disciplines outside the arts



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Through listening to, analyzing, describing, and composing original sound pieces, students will develop skills and understandings in science, mathematics, language arts, and music. Teamwork and creativity are necessary to create a rhythmic composition using cups that demonstrates understanding and identification of various sounds. Musical skills addressed include improvising, composing, listening, and playing.

Essential Question: How can music listening and composing support learning in other curricular areas?

Process

- Have recording of drums playing as students enter the room. Discuss what is heard, encouraging students to use musical terms (e.g., instrument names, dynamics, texture, etc.) as possible.
- Demonstrate different pitches (high, middle, low) of various size drums (using same relative force), discussing acoustics and the relationship of sound to drum size.
- Transfer these acoustical principles to various size plastic cups.
- Play listening game. Out of students' sight, perform 4- or 8-beat rhythmic patterns (or beats) on different drums and/or cups. Challenge students to identify what was heard (e.g., 3 sounds on small drum and 1 sound on medium drum). Have students echo pattern, using body percussion (e.g., clap for high drum, pat for medium drum, stamp for large drum).
- Perform an 8-beat rhythmic pattern using low, medium, and/or high sounds and have students identify what was heard. Keep the patterns simple by using quarter notes (1 sound on each number) and eighth notes (2 sounds on each number only). Using an 8-beat visual may be helpful to guide student responses.
- Divide students into groups of 4-6, with each student having a cup. Have students create an 8-beat pattern using cups. Remind them to include everyone in the composing and performing process (thus, some students may need to switch cups).
- Distribute pencils and "pitch detective" sheets. While each group performs (out of the sight of their classmates), have other students function as "pitch detectives" and notate what they hear (using words, graphs, etc.). For example, using a blank 8x3 table (such as appears below), students could write an "X" in the appropriate boxes based on what they hear. The boxes below would demonstrate 4 high sounds, 2 medium sounds, and 2 low sounds.

X	X	X	X				
				X	X		
						X	X

- Compare and contrast student compositions, discussing and/or writing about differences in pitches and rhythms.

Extensions

- Combine 2 student compositions into a 16-beat phrase.
- Combine 2 student compositions simultaneously, producing a thicker texture.
- Alter dynamics and/or tempo of student compositions.
- Have students write compositions for others to perform using various notational systems.
 - Write 1-2 Xs in each cell of a 3x8 table.
 - Use other symbols (triangle, square, circle) to represent high, middle, and low sounds.
- Have students write sequential steps for generating new compositions.

Materials

- Audio recording of drum composition
- Sound source
- Drums of 3 different sizes
- Plastic cups of 3 different sizes
- 8-beat visual (numbers 1-8 spaced evenly)
- Pencils
- "Pitch detective" sheets for each student
- "Pitch detective" visual on board

Vocabulary

Acoustics

The branch of physics that deals with sound and sound waves

Body Percussion

Sounds produced by striking or scraping parts of the body; typically includes snapping, clapping, patting, and stamping

Dynamics

Volume of sound (loudness, quietness)

Texture

The thickness or thinness of sound

Classroom Tips

Have ample space in the room so that student groups can move far enough apart during the creating process to enable careful listening and minimize distraction from other groups. Perform compositions out of sight of "audience," so students rely on listening rather than sight to identify sounds heard.

Assessment

- Students identify high, middle, and low sounds aurally.
- Students verbally describe the impact of size on sound.
- Students create and perform an 8-beat rhythmic pattern.
- Students identify pitch elements of peers' compositions verbally and through notation.

ESOL Modifications and Adaptations

Ensure that students have a clear understanding of the concepts of steady beat and pitch, along with the music vocabulary words texture, dynamics, acoustics, and body percussion.

ESOL Assessments

Same as lesson

Gifted Modifications and Extensions

Provide students with a variety of materials (including but not limited to: cardboard boxes, plastic hangers, foil, rubber bands in different sizes, etc). Ask students to build (or design) new instruments that play different pitches. Allow students to research and explore how instruments are made. Having different students research different instruments will allow for discussion on how they make different sounds.

Gifted Assessments

Did students work together cooperatively to produce the instruments? Were the instruments able to produce variations in pitch? Student research should be relevant to assigned task.

Special Education Modifications and Adaptations

When discussing the different pitches of the drum sounds, use concrete terms like "small sound", "medium sound" and "big sound". When performing rhythmic patterns, have students perform a 4 beat pattern. Group students into pairs, preferably with a general education peer. Label the pitch detective chart with the pitch terms (small, medium, big). Make the pitch detective 4X3.

Special Education Assessments

Students identify small, medium, and big sounds aurally. Students verbally describe the impact of size on sound. Students create and perform a 4 beat rhythmic pattern.

Common Core Georgia Performance Standards

(*CCGPS implementation year 1: 2012-2013)

ENGLISH LANGUAGE ARTS

GRADE 3

ELACC3W4: With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.

ELACC3SL1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.

ELACC3SL2: Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

ELACC3L3: Use knowledge of language and its conventions when writing, speaking, reading, or listening.

GRADE 4

EELACC4W4: Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

ELACC4SL1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

ELACC4SL2: Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE 5

ELACC5W4: Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

ELACC5SL1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

ELACC5SL2: Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

ELACC5L3: Use knowledge of language and its conventions when writing, speaking, reading, or listening.

WIDA English Language Proficiency Standards

Standard 1: English language learners communicate for Social and Instructional purposes within the school setting.

Standard 2: English language learners communicate information, ideas, and concepts necessary for academic success in the content area of Language Arts.

Standard 3: English language learners communicate information, ideas, and concepts necessary for academic success in the content area of Mathematics.

Standard 4: English language learners communicate information, ideas, and concepts necessary for academic success in the content area of Science.