2025

Junior High Junkanoo Integration Health & General Sciences

HIGH SCHOOL SCIENCES UNIT
E.O. MIRIAM ARMBRISTER

Health Science

Junkanoo Integration

DEPARTMENT OF EDUCATION

CURRICULUM AND INSTRUCTION DIVISION

JUNKANOO INTEGRATION

SUBJECT: Health Science - Nutrients

GRADE: 7

Pacing Guide Week #	**Topic (As displayed on the Pacing Guide)**	**Objectives (As outlined in the Curriculum)**	**Integration Strategy (Activities)**	**Resources**
Week **One** January 6-9, **2025**	Nutrients	Define food and Nutrients. Identify Food Nutrients and state their functions. Carbohydrates, proteins, vitamins, mineral, water, fibre, lipids (fats & oils).	**Nutrient Role-Play** **Objective:** Learn about different nutrients and their functions during exercise. **Activity:** Assign each student a nutrient (e.g., carbs, fats, vitamins, etc.). They role-play how their nutrient supports the body during rushing in Junkanoo, acting out scenarios of fatigue, energy boost, or muscle repair.	□ Chart paper or poster boards. □ Colored markers, pencils, or crayons. □ Images or printouts of different food items.

			Nutrient Matching Game **Objective:** Identify nutrients in various foods and their role in supporting Junkanooers **Activity:** Create cards with food items on one set and their main nutrient and benefits (e.g., "banana – potassium – prevents muscle cramps") on another. Students match them and discuss their relevance to exercise.	
Week **Two** January 13-17, **2025**	Nutrients and Nutrition	Explain the relative portions of food group in the food pyramid/drum. Make a food drum.	**Creating a Food Drum Model.** Understand the structure of a food drum and its food groups. □ Identify the importance of balanced nutrition. □ Collaboratively create a food drum as a class activity.	Chart paper or poster boards. coloured markers, pencils, or crayons. Images or printouts of different food items. Glue or tape. Reference diagram of a food drum. Handouts explaining the food groups and their recommended portions.

			Hydration Relay **Objective:** Emphasize the importance of hydration during physical activity. **Activity:** Conduct a relay race where students pause at hydration stations to learn about the role of water and electrolytes in the body. Use real-world examples like sports drinks versus water. **Food as Fuel Experiment** **Objective:** Understand how different foods provide energy for physical activities. **Activity:** Have students create a meal plan using different food groups and then participate in a short physical activity (e.g., jogging, jumping jacks). They track their energy levels before and after.	

			Discussion: Analyse which foods provided sustained energy and why (e.g., carbohydrates for quick energy, proteins for muscle recovery).	
Week **Three** January 20-24, **2025**	Nutrition	Classify food as starch, fat, simple sugars or fibre. Distinguish between saturated and unsaturated fats.	Briefly explain what carbohydrates are and their role in providing energy. Discuss the difference between simple and complex carbohydrates, emphasizing digestion speed and energy release. **Food Sorting Game** Divide students into small groups. Give each group a set of food cards. Ask them to classify the foods as "simple carbohydrates" or "complex carbohydrates" based on their knowledge or provided handouts.	

			Review and correct the classifications as a class, discussing why each food fits its category. **Physical Activity and Energy Test** Have students eat small, pre-approved snacks representing simple (e.g., fruit) and complex carbohydrates (e.g., a piece of whole-grain bread or oatmeal) beforehand. Engage them in a short, Junkanoo Rush. Afterward, students rate their energy levels on a worksheet and compare how they felt before and after the activity. Let the students rest. Repeat activity. This time engage students in a longer Junkanoo Rush. **Discussion and Analysis**	

			Guide a class discussion about the energy provided by simple versus complex carbohydrates. Highlight how simple carbs provide quick bursts of energy, while complex carbs sustain longer activity.	
Week **Four** January 27-31, **2025**	Nutrition	Balanced Diet. Make menus for balanced diets	**Design a Pre/Post-Workout Meal.** **Objective:** Plan balanced meals that enhance performance and recovery. **Activity:** Divide students into groups to design pre-workout and post-workout meals. Provide them with information about macronutrient requirements for different Rushing in Junkanoo. Each group presents their meal plan with justification.	

DEPARTMENT OF EDUCATION

CURRICULUM AND INSTRUCTION DIVISION

JUNKANOO INTEGRATION

SUBJECT: Health Science - Respiration, Breathing and Gas Exchange

GRADE: 8

Pacing Guide Week #	Topic	Objectives	Integration Strategy (Activities)	Resources
Week One January 6-9, **2025**	**Respiration and Gaseous Exchange**	State the function of the respiratory system and define respiration, breathing and gaseous exchange.	**Activity: CO_2 in Exhaled Air** Discuss whether Junkanoo Rushing activity increases the amount of CO_2 exhaled. Students blow into limewater before and after rushing in place for 2 minutes. Observe and record how quickly the limewater turns cloudy.	**Materials**: Limewater solution, straws, beakers

			Conclusion: Discuss the role of CO_2 as a by-product of cellular respiration.	
Week Two January 13-17, **2025**	**Gas Exchange**	Observe the thin epithelium of the alveolus. A capillary surrounds the alveolus. Recognize the relationship between the structure of the alveoli, capillaries and cells to gas exchange.	**Activity: Critical Thinking Discussion** **Prompt:** "What would happen if your alveoli could not efficiently exchange gases during Junkanoo and other strenuous activities? How would it affect energy production and performance?" Students share responses in small groups or class discussions.	
Week Three January 20-24, **2025**	**Air Composition**	Air composition (both inspired and expired air). Describe the difference in composition of inspired and expired air. Describe how oxygen is used by the body cells to produce energy. Construct pie graphs showing the composition of inhaled and exhaled air.	**Activity: Data Interpretation** **Analysis Task:** Students analyse provided data and answer questions like: Why does oxygen consumption increase during exercise? How do	**Materials:** Charts showing oxygen consumption and heart rate during rest and exercise

			respiration rates compare between trained and untrained individuals?	
Week Four January 27-31, **2025**	**Breathing**	Describe the mechanics of breathing: contractions of diaphragm and intercostals muscles, movement of diaphragm and ribcage.	**Breathing Rate Experiment** **Warm-Up:** Begin with a brief discussion about how the body gets energy for movement. Discuss how Junkanooers prepare for the Rush. **Procedure:** Students measure their resting breathing rate for one minute. Perform a light physical activity (e.g., jumping jacks) for 2 minutes and record breathing rates immediately after. Repeat with moderate and vigorous activities. Like Junkanoo Rushing.	**Materials:** Stopwatch, graph paper, data sheets

			Analysis: Students graph their breathing rates and discuss how correlates with respiration. **Activity: Reflect and Predict** **Prompt:** "If your breathing rate didn't increase during physical activity, what would happen to your body?" Students write short responses or discuss in groups.	

DEPARTMENT OF EDUCATION

CURRICULUM AND INSTRUCTION DIVISION

JUNKANOO INTEGRATION

SUBJECT: Health Science – Sense Organs

GRADE: 9

Pacing Guide Week #	Topic (As displayed on the Pacing Guide)	Objectives (As outlined in the Curriculum)	Integration Strategy (Activities)	Resources
Week One January 6-9, **2025**	**Sense Organs**	List the 5 sense organs and match each with the sense it is responsible for and the stimulus it responds to. Eyes, Ears, Tongue, Nose and Skin. **Objective (New)** Students will explore how the five senses interact during Junkanoo with drums and costumes, enhancing their understanding of sensory perception and cultural appreciation.	**Activity: Sound and Rhythm (Hearing)** **Listen and Identify:** Play various drumbeats and ask students to identify patterns (fast, slow, loud, and soft). Discuss how sound conveys emotions or signals in cultural celebrations. **Create a Beat:** Students create their rhythms and discuss the sensory experience.	**Materials:** Drum or recorded drum sounds, different rhythms

			Activity: Costume Textures (Touch) **Feel and Describe:** Pass around costume material samples. Ask students to describe textures and guess their cultural significance. **Connection:** Discuss how touch adds depth to experiencing Junkanoo	Samples of costume materials (silk, sequins, beads, feathers, etc.)
Week Two January 13-17, **2025**		Continuation of Week One's Learner's Outcomes	**Activity: Visual Impact (Sight)** **Observation Task:** Show images or videos of Junkanoo. Students describe the colours, patterns, and movements they observe. **Art Connection:** Students sketch or design their festival costume inspired by the visuals. **Activity: Festival Cuisine (Taste and Smell)**	Photos or videos of Junkanoo, colourful props

			Discussion: Explore foods that reminds them of Junkanoo and their flavours/aromas. Discuss how taste and smell connect to Junkanoo memories and celebrations. **Creative Writing:** Students write about how a specific food or spice might enhance the festival experience. **Activity: Sense Integration Role-Play** **Role-Play:** Students act out parts the Junkanoo festival, incorporating sounds, sights, textures, and (optional) tastes/smells. Reflect on how all senses come together to create a memorable experience.	Samples of spices or foods of Junkanoo pictures/descriptions Props like drums, scarves, and simple costumes

			Activity: Reflective Discussion **Prompt:** "Which sense do you think plays the most important role during a cultural festival? Why?" Students share opinions and relate to their personal experiences.	
Week Three January 20-24, **2025**		To label a diagram of the human eye. Use the correct names for parts of the eye. Give a simple explanation of how the eyes work.	**Activity: Eye Structure and Function** **Discussion:** Explain how the eye works (light entering the cornea, passing through the lens, focusing on the retina). Highlight the role of rods and cones in detecting light and colour. **Demonstration:** Shine a flashlight into a mirror to simulate how light reflects into the eye.	Eye model or diagram, flashlight, mirrors

Week Four January 27-31, **2025**		Describe how the pupil adjust in bright and dim light. Recognize and explain the relationship between accommodation and clear vision. Describe the function concave and convex lenses. Describe common eye defects and state how they are corrected.	**Activity: Connection to Real-Life Scenarios** **Discussion:** Ask students why their eyes might take time to adjust in these situations. Connect pupil reflex to common experiences, like wearing sunglasses or walking into a dark room. **Activity: Reflection on Beauty** **Prompt:** "Why do you think festivals are designed to be visually beautiful? How does this affect how we feel?" **Discussion:** Connect the visual beauty of festivals to emotions and memories. **Writing Task:** Students write a short paragraph reflecting on how visuals contribute to the overall festival experience.	Videos or images of bright and dim environments (e.g., sunrise, a dark movie theatre).

General Science

Junkanoo Integration

DEPARTMENT OF EDUCATION

CURRICULUM AND INSTRUCTION DIVISION

JUNKANOO INTEGRATION

SUBJECT: General Science – Forces and Energy

GRADE: 7

Pacing Guide Week #	**Topic (As displayed on the Pacing Guide)**	**Objectives**	**Integration Strategy (Activities)**	**Resources**
Week One January 6-9, **2025**	**Forces and Energy** **Energy**	Define energy, forces and work. Introduction to forms of Energy: Light, heat, sound, Magnetic, Solar, Nuclear, Mechanical, Chemical. Identify the sun as the main source of energy.	**Observing Energy in Motion** **Observation Task:** Show a video of Junkanoo. Ask students to identify types of energy involved (e.g., kinetic energy of marchers, sound energy from instruments, and potential energy in drumsticks before they strike).	**Materials:** Video of Junkanoo or a live demonstration, worksheets

			Discussion: Define key energy forms and connect them to Junkanoo. **Activity: Sound Energy and Instruments** **Exploration:** Let students play or observe instruments used in parades. Discuss how vibrations produce sound energy. **Interactive Task:** Students identify how sound travels from instruments to the audience.	**Materials:** Musical instruments (e.g., drums, cymbals, whistles) or audio clips
Week Two January 13-17, **2025**		Continuation of week one's Learner Outcomes	**Energy and Synchronization** **Group Activity:** Students simulate a Junkanoo Rush out by rushing to a beat from a metronome or music. Discuss the energy required to maintain synchronization and how it affects performance.	**Materials:** Metronome, music with a Junkanoo beat

			Reflection: How does synchronized movement enhance the parade's energy efficiency? **Activity: Designing a Junkanoo costume (Energy Integration)** **Creative Task:** Students design a Junkanoo costume/piece that uses energy creatively (e.g., solar-powered lights, mechanical movements). Explain how energy transforms and functions in their costume/piece. **Discussion and Reflection** **Prompt:** "How does energy in Junkanoo create excitement and engagement for the audience?" **Writing Task:** Students reflect on how different energy forms contribute to	**Materials:** Paper, markers, or digital drawing tools

			the overall parade experience. **Class Discussion:** Share insights about energy's role in both participants and spectators' experiences.	
Week Three January 20-24, **2025**		Types of Energy - Potential and Kinetic Energy. Differentiate between kinetic and potential energy. Use a simple pendulum and/or elastic band to demonstrate potential and kinetic energy. Use the SI units for energy. Conduct an experiment to show energy transformation. Use transformation diagrams to demonstrate the law of conservation of energy.	**Energy in Movement (Kinetic and Potential Energy)** **Experiment:** Use drumsticks or a similar object to simulate a Junkanoo Drum or a cow bell. Demonstrate how lifting and striking the drum or the shaking of a cow bell shows potential and kinetic energy. Explore how energy transfers from the Junkanooer's muscles to the instruments. **Analysis:** Students explain how energy transforms during movement.	**Materials:** Small objects (e.g., drums, toy drums, 5 gallon bottles, small water bottles with rocks, rubber bands), worksheets

Week Four January 27-31, **2025**		Demonstrate that energy is needed for work to be done. Calculate scientific work using the equation W = F x d. State the SI unit of work	**Activity: Introduction to Work (Force × Distance)** **Experiment:** Attach weights to a cart or box and pull it using a spring scale. Measure the force applied and the distance moved. Calculate work using Work=Force × Distance **Discussion:** Define work as energy transfer when a force moves an object over a distance. Highlight that work is done only if the object moves in the direction of the force. **Activity: Designing a Junkanoo lead piece. (Creative Application)** **Task:** Students design a miniature parade float using cardboard and toy wheels.	Spring scale, weights, ruler, small cart or box Cardboard, markers, toy wheels, glue, string, measuring tape

			Decorate the float to represent a theme of their choice. **Connection:** Discuss how the float's weight and the force needed to pull it relate to work. **Activity: Measuring Work in Moving the Lead Piece** **Experiment:** Students use a spring scale to pull their float a set distance. Measure the force applied and calculate the work done. Repeat the experiment on different surfaces (smooth, rough) to compare the work needed. **Analysis:** Discuss how factors like weight, surface texture, and distance affect the work done.	Completed floats, spring scales, rulers, data sheets

DEPARTMENT OF EDUCATION

CURRICULUM AND INSTRUCTION DIVISION

JUNKANOO INTEGRATION

SUBJECT: General Science

GRADE: 8 Forces – Push & Pull

Pacing Guide Week #	Topic	Objectives (As outlined in the Curriculum)	Integration Strategy (Activities)	Resources
Week One January 6-9, **2025**	**Forces**	Recall SI units for mass. Demonstrate forces as push or pull. Observe and identify forces as they affect motion of objects.	**Exploring Push and Pull** **Demonstration:** Push and pull a cart to show how forces move objects. Use spring scales to measure the force applied during each action. **Student Task:** In pairs, students take turns pushing and pulling a loaded cart and recording the force required for each action.	**Materials:** Small carts or toy wagons, weights, spring scales

			Discussion: Compare the effort needed for pushing vs. pulling. Highlight how the direction and application of force affect motion.	
Week Two January 13-17, **2025**	**Newton's Third Law of Motion**	Demonstrate Newton's three laws of motion. Make an instrument that measures force. Use apparatus to demonstrate pressure.	**Activity: Collaborative Junkanoo Piece Challenge** **Task:** In groups, students calculate the force needed to push or pull the float over a set distance. Assign roles (pushers, force measurers, distance trackers) to simulate teamwork in moving a real float. **Connection:** Discuss how each push or pull creates a reaction force that moves the float forward. **Activity: Reflection and Writing**	**Materials:** Large weighted box or platform, force meters, wheels (optional)

			Prompt: "How does Newton's Third Law help us understand how forces work when moving a Junkanoo lead piece?" **Discussion:** Relate to practical considerations like teamwork, friction, and surface type. **Writing Task:** Students write about how action-reaction pairs play a role in making a float move effectively.	
Week Three January 20-24, **2025**	**Simple Machines**	Describe the role as a machine. State the function of a simple machine. Identify the six simple machines with examples. Levers Pulleys, Inclined Plane, Screw, Wheel and Axle and Wedge.	**Identifying Simple Machines in Junkanoo.** **Observation Task:** Show students, images/videos of Junkanoo pieces (lead pieces). Ask them to identify visible simple machines (e.g., wheels, pulleys for decorations).	**Materials:** Images or videos of parade floats, worksheet. **Materials:** Toy wheels, cardboard, pulleys, weights, string

			Discussion: Explain how each simple machine contributes to moving or designing the float. **Collaborative Junkanoo Engineering Challenge** **Task:** In groups, students design and build a Junkanoo piece using a combination of simple machines. Test how efficiently it moves or performs tasks (e.g., pulling, lifting). **Presentation:** Groups explain how they used simple machines to improve efficiency.	
Week Four January 27-31, **2025**	**Levers**	Distinguish between the three classes of levers. Observe differences between the three classes of levers. Classify examples of levers from given photographs/ diagrams.	**Investigating the Three Classes of Levers** **Experiment:** First-Class Lever: Place the fulcrum between the load and effort (e.g., seesaw).	**Materials:** Wooden planks, bricks, weights, force meters, diagrams of lever types

			Second-Class Lever: Place the load between the fulcrum and effort (e.g., wheelbarrow). Third-Class Lever: Place the effort between the fulcrum and load (e.g., tweezers). **Task:** Test lifting weights with each type of lever and measure the force required.	

DEPARTMENT OF EDUCATION

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JUNKANOO INTEGRATION

SUBJECT: General Science - Light Energy

GRADE: 9

Pacing Guide Week #	Topic (As displayed on the Pacing Guide)	Objectives (As outlined in the Curriculum)	Integration Strategy (Activities)	Resources
Week One January 6-9, **2025**	**Forces and Energy** **Light**	Describe a wave. Label the parts of a transverse wave (crest, trough amplitude, and wavelength). Classify energy based on its wavelength.	Students will identify and relate the parts of a transverse wave (crest, trough, amplitude, and wave length) to elements of a cultural festival (e.g., dance movements, drum rhythms, or visual patterns in decorations).	**Materials Needed:** Diagram of a transverse wave. Videos or photos of Junkanoo, music performances, or decorations Craft materials (paper, markers, rulers) Speakers to play rhythmic Junkanoo music.

			Introduction to Transverse Waves Briefly explain the parts of a transverse wave: crest (highest point), trough (lowest point), amplitude (height of the wave), and wavelength (distance between two crests or troughs). Use a diagram to visualize these elements. **Observation of Junkanoo Festival** Show a video or images from Junkanoo featuring rhythmic drumming, traditional dances, or visual patterns (e.g., colourful banners or lights). Discuss how rhythms and movements have peaks (high-energy moments) and valleys (low-energy moments), similar to wave crests and troughs.	

			Hands-On Connection: **Option 1: Rhythm Waves** Play a rhythmic Junkanoo drumbeat and have students draw a wave diagram representing the rhythm. The louder beats can represent crests, while softer beats represent troughs. **Option 2: Dance Wave** Students analyse a Junkanoo dance. The highest and lowest movements in the dance can correspond to crests and troughs. **Option 3: Decoration Wave** Students create a "wave banner" for the festival, using markers to draw patterns that show crests, troughs, amplitude, and wavelength.	

			Discussion and Presentation Students share their work, explaining how they visualized the parts of a transverse wave using the Junkanoo element they studied. **Reflection:** Discuss how understanding wave properties can enhance our appreciation of Junkanoo rhythms and art forms.	
Week Two January 13-17, **2025**	**Light**	Observe components of white light. Differentiate between luminous and non-luminous objects. Describe an investigation to show that light travels in a straight line. Observe formation of shadows.	**Introduction to Luminous and Non-Luminous Objects:** Explain the difference: **Luminous objects:** Emit their own light (e.g., glow sticks, LED lights). **Non-luminous objects:** Reflect light but do not emit it (e.g., fabric, jewellery).	Images or videos of Junkanoo costumes.

			Show examples from everyday life (e.g., the Sun vs. a mirror). **Exploring Junkanoo Costumes:** Show images or videos of Junkanoo costumes. Highlight features like glowing accessories (e.g., LED-lit elements) and reflective decorations (e.g., sequins or metallic ornaments). Ask students to identify and describe the luminous and non-luminous parts of the costumes. **Hands-On Activity: Costume Design:** **Task:** Students design a miniature Junkanoo costume. Provide materials like glow sticks or small LED lights for luminous elements.	

			Use glitter, foil, or sequins for non-luminous parts. Students label the luminous and non-luminous components in their design. **Class Discussion and Presentation:** Each student presents their costume design, explaining how they differentiated between luminous and non-luminous features.	
Week Three January 20-24, **2025**	**Light**	Compare transparent, translucent and opaque materials in terms of what happens when light strikes them.	**Introduction to Light and Materials:** Explain the definitions with examples: **Transparent:** Allows light to pass through completely (e.g., clear glass). **Translucent:** Allows some light through but scatters it (e.g., frosted glass). **Opaque:** Blocks light completely (e.g., wood).	

			Demonstrate using a flashlight and materials to show how light interacts with them. **Exploration of Junkanoo Festival Elements:** Show images or videos of Junkanoo featuring items like lanterns, paper cut outs, and masks. Discuss examples from Junkanoo: Lanterns may use translucent paper to create soft light. Transparent materials might be used in decorative panels or costumes. Opaque materials might form solid props or masks. **Hands-On Activity: Junkanoo Decoration Experiment**	

			Provide students with flashlights and a variety of materials (transparent plastic, translucent tissue paper, opaque cardboard). **Task:** Students create their own "Junkanoo prop" or decoration. Use transparent materials for windows or lenses. Use translucent materials for glowing effects. Use opaque materials for solid decorative parts. Test each material with a flashlight to observe its interaction with light. **Class Presentation:** Students share their decorations, explaining their choice of materials and how they used transparency, translucency, and opacity to achieve a specific visual effect.	

			Reflection: Discuss how these properties enhance the visual appeal of Junkanoo, creating vibrant and dynamic displays.	
Week Four January 27-31, **2025**	**Light**	Make a model of a pin-hole camera. Use apparatus to demonstrate reflection of light. State that light is reflected. State that light is refracted as it passes from one medium into another.	**Introduction to the Pinhole Camera:** Explain how a pinhole camera works: Light passes through a tiny hole and projects an inverted image on the opposite side. Relate this concept to photography, including traditional and cultural documentation. **Construction:** Guide students to build their pinhole cameras. Cover the inside of the box with black paper to prevent light reflection. Make a small pinhole on one side.	**Materials Needed:** • Small cardboard boxes or empty cans with lids • Aluminium foil • Black paper or paint • Tape, scissors, and glue • Needles or pins to make the pinhole • Wax paper or tracing paper (for the screen) • Flashlights

			Place wax paper or tracing paper on the opposite side as a screen. Seal all edges to ensure no light leaks except through the pinhole. **Testing the Camera:** Take the cameras outside or use brightly lit objects indoors. Observe images formed on the screen. **Capturing Junkanoo Elements:** Set up a "mini Junkanoo Parade" with props and decorations. Students use their pinhole cameras to observe the scenes, noting how light and colour appear on the screen.	

			Connecting to Junkanoo Imagery: Discuss how Junkanoo use vibrant lights and patterns, and how the pinhole camera captures these effects. Compare the clarity and colours seen through the camera to those observed directly.	