

Bachelor of Education (Elementary) & Bachelor of Education (Secondary) STEM/BETT Lesson Plan

Lesson Title: Systems - The Respiratory System Lesson # 3 Date: April 17, 2025
 Name: The Human Respiratory System Subject: Science Grade(s): 5

Rationale:

This unit plan is important because it introduces human systems that are responsible for living and remaining healthy throughout life. When students learn and understand how these systems work, they start to understand themselves better, why the systems are important for survival, and also how to stay healthier throughout life.

This lesson is important because it educates students about their respiratory system and how their lungs work. Students will understand more about their respiratory system so they will be better informed as to how to take care of themselves for lifelong health and activity.

Core Competencies:

Communication	Thinking	Personal & Social
<ul style="list-style-type: none"> • Collaborating – Working Collectively: <p>Students combine their efforts with those of others to effectively accomplish learning and tasks. As members of a group, they appreciate interdependence and cooperation, commit to needed roles and responsibilities, and are conscientious about contributing. They also negotiate respectfully and follow through on plans, strategies, and actions as they share resources, time, and spaces for collaborative projects.</p>	<ul style="list-style-type: none"> • Critical & Reflective thinking – Reflective & Assessing: <p>Students apply critical, metacognitive, and reflective thinking in given situations, and relate this thinking to other experiences, using this process to identify ways to improve or adapt their approach to learning. They reflect on and assess their experiences, thinking, learning processes, work, and progress in relation to their purposes. Students give, receive, and act on feedback and set goals individually and collaboratively. They determine the extent to which they have met their goals and can set new ones.</p>	<ul style="list-style-type: none"> • Positive Personal & Cultural Identity – Recognizing Personal Values & Choices: <p>Students define who they are by what they value. They understand how what they value has been influenced by their life experiences. They identify how their values help to shape their choices, in all contexts of their lives.</p> <ul style="list-style-type: none"> • Personal Awareness & Responsibility – Self-advocating: <p>Students who are personally aware and responsible have a sense of self-worth and a growing confidence in a variety of situations. They value themselves, their ideas, and their accomplishments. They are able to express their needs and seek help when needed, find purpose and motivation, act on decisions, and advocate for themselves.</p> <ul style="list-style-type: none"> • Social Awareness & Responsibility – Building Relationships: <p>Students build and maintain diverse, positive peer and intergenerational relationships.</p>

		They are aware and respectful of others' needs and feelings and share their own in appropriate ways. They adjust their words and actions to care for their relationships.
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Big Ideas (Understand)

<p>Science: Multicellular organisms have organ systems that enable them to survive and interact within their environment.</p> <p>PHE: Understanding ourselves and the various aspects of health helps us develop a balanced lifestyle.</p> <p>Arts Education: Engaging in creative expression and experiences expands people's sense of identity and belonging.</p> <p>ELA: Questioning what we hear, read, and view contributes to our ability to be educated and engaged citizens.</p>
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Learning Standards

(DO)	(KNOW)
Learning Standards - Curricular Competencies	Learning Standards - Content
<p>Questioning and predicting:</p> <ul style="list-style-type: none"> Identify questions to answer or problems to solve through scientific inquiry <p>Processing and analyzing data and information:</p> <ul style="list-style-type: none"> Demonstrate an openness to new ideas and consideration of alternatives Identify patterns and connections <p>Applying and innovating:</p> <ul style="list-style-type: none"> Transfer and apply learning to new situations <p>PHE:</p> <p>Healthy and active living:</p> <ul style="list-style-type: none"> Describe the impacts of personal choices on health and well-being <p>Arts Education:</p> <p>Exploring and creating:</p> <ul style="list-style-type: none"> Create artistic works collaboratively and as an individual using ideas inspired by imagination, inquiry, experimentation, and purposeful play Explore connections to identity, place, culture, and belonging through creative expression <p>Reasoning and reflecting:</p> <ul style="list-style-type: none"> Examine relationships between the arts and the wider world <p>Communicating and documenting:</p> <ul style="list-style-type: none"> Interpret and communicate ideas using symbols and elements to express meaning through the arts Experience, document and present creative works in a variety of ways 	<ul style="list-style-type: none"> Basic structures and functions of body systems: <ul style="list-style-type: none"> Respiratory Benefits of physical activity and exercise Image development strategies - processes that transform ideas and experiences into visual images Symbolism and metaphor to explore ideas and perspective Strategies and processes - focusing on the speaker, asking questions to clarify, listening for specifics, expressing opinions, speaking with expression, staying on topic, taking turns

<p>ELA: Comprehend and connect (reading, listening, viewing):</p> <ul style="list-style-type: none"> • Access information and ideas from a variety of sources and from prior knowledge to build understanding • Consider different purposes, audiences, and perspectives in exploring texts • Use personal experience and knowledge to connect to text and develop understanding of self, community, and world 	
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Instructional Objectives & Assessment

Instructional Objectives (students will be able to...)	Assessment
<ol style="list-style-type: none"> 1. For students to gain an education on the basic components of the human respiratory system & how the lungs work with the heart and blood to move oxygen around the body to cells 2. For students to participate in an activity to make a model of a respiratory system that shows how the lungs and diaphragm work together using basic materials 	<p>Observation:</p> <ul style="list-style-type: none"> • Participation in the activity • Interest in the activity & how they put effort into the subject <p>Conversation:</p> <ul style="list-style-type: none"> • Asking questions throughout the lesson & activity • Interest in trying to answer questions from the teacher <p>Product:</p> <ul style="list-style-type: none"> • Building a working model of a lung & diaphragm

Prerequisite Concepts and Skills:

<ul style="list-style-type: none"> • Basic knowledge of system existence in the human body • Willingness to learn about new things
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Indigenous Connections/ First Peoples Principles of Learning:

<p>Learning involves recognizing the consequences of one's actions – When we treat ourselves badly, our health can suffer. For instance, lack of exercise will eventually affect one's health and mobility leading to health issues.</p> <p>Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectiveness, on reciprocal relationships, and a sense of place): Students learning about themselves is natural & interest based. Students will reflect on what they have learned and what it means to them. The human circulatory system presents a real-life scenario to students in which they will explore & learn.</p> <p>Learning involves patience and time: Learning new things will take time to understand and we often need patience to give the information the time to do that. When something is new, it can cause anxiety but by taking the time to absorb the information and understanding why we are learning it makes it more relevant.</p>

Universal Design for Learning (UDL):

<p>Multiple Means of Representation:</p> <ul style="list-style-type: none"> • Use of texts, video, visuals, and a model (if available from the Henry Grube Centre) to cater to different learning styles and sensory preferences. <p>Multiple Means of Action and Expression:</p> <ul style="list-style-type: none"> • Providing students with opportunities to demonstrate their understanding and engage with the material in this lesson plan by producing a model of a human respiratory system,
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conversations during instruction & model building, and taking part in the hook which is an activity directly related to the respiratory system.

Multiple Means of Engagement:

- Using multiple ways to express learning in watching a video, doing a hands-on activity, and discussion.
- Making the lesson motivating and engaging for students through activities, making learning about the human respiratory system relevant to real-world applications, and fostering collaboration of students.

Differentiate Instruction (DI):

- Using an activity to produce a product that is hands-on and real-world relevant
- Using a video to engage the students and appeal to those that are visual learners
- Using a hook to engage students that builds curiosity & activates critical thinking

Materials and Resources

- Ballons
- Plastic water bottles (Amy)
- Laptop (Classroom)
- Projector (Classroom)
- Comic strip templates
- Markers (Classroom)
- Pencil crayons (Classroom)
- Pencils & erasers (Classroom)
- Respiratory diagram for instruction
- Respiratory model from Henry Grube Centre (Classroom)

Lesson Activities (45 minutes – adjusted for fire drill & library time for the afternoon):

Teacher Activities	Student Activities	Time
<p>Introduction (anticipatory set – “HOOK”):</p> <ul style="list-style-type: none"> • Remind students of the rules: <ul style="list-style-type: none"> ○ Put up your hand if you want to talk ○ No side conversations because I cannot teach effectively if I constantly need to remind people to stop talking ○ When you get any paperwork, add your name to it immediately so you don’t forget <p>“What Am I?” Mystery Riddle:</p> <ul style="list-style-type: none"> • Start with a riddle and let students guess what system you’re talking about: <p>“I pump without stopping, I carry red and blue, I travel through your body— Keeping oxygen flowing too. What am I?”</p>	<ul style="list-style-type: none"> • Students will put their hand up if they have a guess 	<p>2 minutes</p>

<p>➤ A muscle that helps with breathing by expanding and contracting the chest cavity.</p> <p>Activity – Balloon Lungs:</p> <ul style="list-style-type: none"> • Put students into pairs that work well together • Hand out supplies to the students • Ask the students to cut off the bottom of their water bottle • Get them to hang a balloon inside the opening where the cap attaches • Ask them to cut the end off of another balloon and tie a knot in the long skinny portion that you would blow into • Stretch the cut balloon opening over the cut bottle bottom carefully so it doesn't break on the sharp edges ("diaphragm") • Students should be able to push and pull the knot ("diaphragm") to mimic breathing in and out • Let students know that they have 15 minutes to build the model • The teacher (plus other adults in the room) will rotate around the room & help where needed • Remind students to add their names to their projects • At the 10-minute mark passed, announce to students that they have 5 minutes remaining <p>If there is time only - Follow Up Activity – Cartoon strip (20 minutes):</p> <ul style="list-style-type: none"> • Have the students create a "Breathing Buddy" comic strip • Ask students to draw a short comic of a breath of air traveling through their body, meeting parts like the nose, lungs, and diaphragm along the way. • Offer several templates for students to choose from • Give students a 5-minute warning before their time is up 		20 minutes
<p>Closure: Clean-up:</p> <ul style="list-style-type: none"> • Remind students to put their name on their model 	<ul style="list-style-type: none"> • Students will clean up their area & get ready to continue to the next scheduled item 	5 minutes

Organizational Strategies:

- Students will be coming back from recess, so they have had a good break outside for them to sit again, learn, & do an activity in pairs
- When students are at their desks, they will be asked to listen without talking
- When students have questions or want to contribute to the class discussions, they will raise their hand and wait for the teacher to call on them before speaking out
- Supplies will not be distributed to the students until after the instruction and right before their activity time
- Students that are talking without raising their hand will be asked to raise their hand if they want to contribute to the class discussions
- Students that are not cooperating or working well together during the activity and instruction will be separated

Proactive, Positive Classroom Learning Environment Strategies:

- The teacher will give students a lot of opportunities to engage with the subject matter & ask questions
- There will be a planning page distributed to students so that they can prepare before they do the activity
- Other adults in the room will help the students with the activity steps if needed
- The teacher will make behaviour expectations clear – sit quietly and listen attentively without distracting other students, only speak if the teacher calls on you – by stating them before the lesson – pairs will get along and cooperate or they will be separated
- The teacher will verbally acknowledge and thank students who are on task and will verbally address students who continue to distract others
- The teacher will, if necessary, separate students who continue to distract each other

References:

Video for lesson: <https://www.youtube.com/watch?v=uyqt7ekkP2E>
Word searches: <https://x2u6u9n4.delivery.rocketcdn.me/wp-content/uploads/2020/06/Circulatory-System-Word-Search.pdf>
<https://www.puzzles-to-print.com/science/respiratory-system-word-search.shtml>
Balloon lung activity: <https://www.youtube.com/watch?v=WJ06mrNliCQ>

Extensions:

Early finishers can do a word search or comic strip that tells the story of how air is passed into the body using definitions that we used today.

Reflections (if necessary, continue on separate sheet):

This lesson went well but the activity was a bust. The water bottles were purchased from Wal-Mart and they had really flexible sides so putting the balloon over the ends, did not work at all. They just crumbled. It was a great activity to see the relationship between the lungs & diaphragm but I would use sturdy sided water bottles such as a pop bottle of Aquafina bottle. The balloons were a bit of an issue because the boys took it to mean that they could blow them up instead of using them in the activity & this made for a huge amount of noise & caused anxiety in a lot of people. If I did this again I would also make sure that expectations are clear & the students know that they cannot blow the balloons up.

