

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

**Lesson Title:** Systems - The Circulatory System      **Lesson #** 4      **Date:** Tues April 22, 2025  
**Name:** The Human Circulatory System      **Subject:** Science      **Grade(s):** 4/5

**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 circulatory system and how their body moves blood around to reoxygenate cells via the heart, veins, and arteries. Students will understand more about their circulatory 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"> <li>• <b>Collaborating – Working Collectively:</b> 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.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Critical &amp; Reflective thinking – Reflective &amp; Assessing:</b> 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.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Positive Personal &amp; Cultural Identity – Recognizing Personal Values &amp; Choices:</b> 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.</li> <li>• <b>Personal Awareness &amp; Responsibility – Self-advocating:</b> 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.</li> <li>• <b>Social Awareness &amp; Responsibility – Building Relationships:</b></li> </ul>

		<p>Students build and maintain diverse, positive peer and intergenerational relationships. 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.</p>
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### Big Ideas (Understand)

<p><b>Science:</b> Multicellular organisms have organ systems that enable them to survive and interact within their environment.</p> <p><b>PHE:</b> Understanding ourselves and the various aspects of health helps us develop a balanced lifestyle.</p> <p><b>Arts Education:</b> Engaging in creative expression and experiences expands people's sense of identity and belonging.</p> <p><b>ELA:</b> 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><b>Questioning and predicting:</b></p> <ul style="list-style-type: none"> <li>Identify questions to answer or problems to solve through scientific inquiry</li> </ul> <p><b>Processing and analyzing data and information:</b></p> <ul style="list-style-type: none"> <li>Demonstrate an openness to new ideas and consideration of alternatives</li> <li>Identify patterns and connections</li> </ul> <p><b>Applying and innovating:</b></p> <ul style="list-style-type: none"> <li>Transfer and apply learning to new situations</li> </ul> <p><b>PHE:</b></p> <p><b>Healthy and active living:</b></p> <ul style="list-style-type: none"> <li>Describe the impacts of personal choices on health and well-being</li> </ul> <p><b>Arts Education:</b></p> <p><b>Exploring and creating:</b></p> <ul style="list-style-type: none"> <li>Create artistic works collaboratively and as an individual using ideas inspired by imagination, inquiry, experimentation, and purposeful play</li> <li>Explore connections to identity, place, culture, and belonging through creative expression</li> </ul> <p><b>Reasoning and reflecting:</b></p> <ul style="list-style-type: none"> <li>Examine relationships between the arts and the wider world</li> </ul> <p><b>Communicating and documenting:</b></p> <ul style="list-style-type: none"> <li>Interpret and communicate ideas using symbols and elements to express meaning through the arts</li> </ul>	<ul style="list-style-type: none"> <li>Basic structures and functions of body systems: <ul style="list-style-type: none"> <li>Circulatory</li> </ul> </li> <li>Benefits of physical activity and exercise</li> <li>Image development strategies - processes that transform ideas and experiences into visual images</li> <li>Symbolism and metaphor to explore ideas and perspective</li> <li>Strategies and processes - focusing on the speaker, asking questions to clarify, listening for specifics, expressing</li> </ul>

<ul style="list-style-type: none"> <li>• Experience, document and present creative works in a variety of ways</li> </ul> <p><b>ELA:</b> <b>Comprehend and connect (reading, listening, viewing):</b></p> <ul style="list-style-type: none"> <li>• Access information and ideas from a variety of sources and from prior knowledge to build understanding</li> <li>• Consider different purposes, audiences, and perspectives in exploring texts</li> <li>• Use personal experience and knowledge to connect to text and develop understanding of self, community, and world</li> </ul>	<p>opinions, speaking with expression, staying on topic, taking turns</p>
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### Instructional Objectives & Assessment

Instructional Objectives (students will be able to...)	Assessment
<ol style="list-style-type: none"> <li>1. For students to gain an education on the basic components of the human circulatory system &amp; how those parts move blood around the body to oxygenate cells</li> <li>2. For students to participate in an activity to make a model of a circulatory system that shows the heart, veins, and arteries moving blood around the body using basic materials</li> </ol>	<p><b>Observation:</b></p> <ul style="list-style-type: none"> <li>• Ability to work with a partner to make a circulatory model</li> <li>• Willingness to participate in the activity</li> <li>• Ability to work in a team (pair)</li> <li>• Problem solving skills</li> <li>• Kahoot! involvement (participation in pairs)</li> </ul> <p><b>Conversation:</b></p> <ul style="list-style-type: none"> <li>• Participation in the questions during instruction</li> <li>• Willingness to help with answers during instruction</li> </ul> <p><b>Product:</b></p> <ul style="list-style-type: none"> <li>• Built human body model with veins, arteries, and heart</li> <li>• Learning log</li> </ul>

### Prerequisite Concepts and Skills:

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

<p><b>Learning involves recognizing the consequences of one's actions</b> – 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><b>Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectiveness, on reciprocal relationships, and a sense of place):</b> Students learning about themselves is natural &amp; 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 &amp; learn.</p> <p><b>Learning involves patience and time:</b> 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>
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## Universal Design for Learning (UDL):

### Multiple Means of Representation:

- Use of texts, video, visuals, and a model (if available from the Henry Grube Centre) to cater to different learning styles and sensory preferences.
- Using Kahoot! in pairs to have a fun interactive quiz for students to see what they already know about the circulatory system.

### Multiple Means of Action and Expression:

- Providing students with opportunities to demonstrate their understanding and engage with the material in this lesson plan by producing a model of a human circulatory system, conversations during instruction & model building, and taking part in the hook which is an activity directly related to the circulatory system and the power behind it (the heart).

### 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 circulatory system relevant to real-world applications, and fostering collaboration in pairs 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 fun “what’s in the box?” as a hook to engage the students from the beginning of the lesson

## Materials and Resources

- Kahoot! set up
- Chromebooks
- Popsicle sticks to pick pairs
- Laptop
- Projector
- Small box
- Small plastic heart or paper cut out heart (using a Lego heart for this one)
- Pens, pencils, & erasers
- Worksheets (planning pages, learning log, heart diagram, and circulatory diagram)
- Poster board (cut into halves for each student)
- Red and blue yarn (to represent arteries and veins)
- Red and blue playdough (for the heart)
- Scissors
- Glue (stick & liquid)
- Tape
- Pencil crayons

## Lesson Activities (60 minutes):

Teacher Activities	Student Activities	Time
<b>Introduction</b> (anticipatory set – “HOOK”): <ul style="list-style-type: none"> <li>• Show a small box and give it a shake to peak interest</li> </ul>		

<ul style="list-style-type: none"> <li>• Ask students “Inside this box is something that keeps you alive. It’s moving right now inside you. It’s strong, fast, and works without stopping... Any guesses?”</li> <li>• Open the box to reveal a toy heart or paper cutout heart</li> <li>• Our hearts have a very important role in our bodies, and we are going to look at what it does</li> </ul>	<ul style="list-style-type: none"> <li>• Students will put their hand up if they have a guess</li> </ul>	5 minutes
<p><b>Body:</b> Show <b>video</b> about the circulatory system: <a href="https://www.youtube.com/watch?v=f9ONXd_-anM">https://www.youtube.com/watch?v=f9ONXd_-anM</a></p> <p><b>Main Instruction:</b></p> <ul style="list-style-type: none"> <li>• Our hearts are the powerhouse to our bodies</li> <li>• Our hearts pump our blood around our body without us having to think about it (involuntary)</li> <li>• Blood nourishes our cells &amp; organs with oxygen &amp; food</li> <li>• Show a diagram of the circulatory system</li> <li>• Our heart pumps out oxygenated blood to the rest of the body from the lungs &amp; also brings deoxygenated blood back to the lungs so that it can pick up oxygen again</li> <li>• Work through a circulatory system labeling together as a class using a blank diagram <a href="https://www.teacherspayteachers.com/Product/Circulatory-System-10083844">https://www.teacherspayteachers.com/Product/Circulatory-System-10083844</a> <ul style="list-style-type: none"> <li>○ Ask students to help label the diagram with the heart, veins, arteries, and capillaries</li> </ul> </li> <li>• Use popsicle sticks to choose student pairs</li> <li>• Get students to get one Chromebook per pair and log into Kahoot!</li> <li>• Start <b><i>Kahoot!</i></b></li> </ul> <p><b>Project Planning:</b></p> <ul style="list-style-type: none"> <li>• Students will stay in their pairs</li> <li>• Show students the model that was built</li> <li>• Let students know that we will be building this model in pairs and explain it briefly</li> <li>• Hand out the planning page</li> <li>• Go through the planning page for the activity: <ul style="list-style-type: none"> <li>○ What will you include in your model? <ul style="list-style-type: none"> <li>➤ Heart (Play-Doh)</li> <li>➤ Lungs (cut-out &amp; colour)</li> <li>➤ Arteries (red yarn)</li> <li>➤ Veins (blue yarn)</li> <li>➤ Arrows to show blood direction (markers)</li> </ul> </li> <li>○ Draw a sketch of your model using coloured pencils or markers <ul style="list-style-type: none"> <li>➤ Draw an outline of a human body</li> <li>➤ Show where the heart, arteries, veins, and lungs will go</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Students will watch the video</li> <li>• Students will raise their hands and ask questions when they have them</li> <li>• Students will raise their hands to answer the teacher’s questions throughout the lesson</li> <li>• Students will get set up in Kahoot! with 1 Chromebook per pair</li> </ul>	5 minutes  5 minutes    5 minutes  5 minutes

<ul style="list-style-type: none"> <li>➤ Add arrows to show the blood flow direction</li> <li>➤ Veins are returning to the heart &amp; arteries are moving away from the heart</li> </ul> <p><b>Done Planning, Now Doing:</b>  <b>Modeling the Circulatory System with Yarn and Play-Doh</b>  <b>Using the Diagram as a reference:</b></p> <ul style="list-style-type: none"> <li>• On the poster board, draw an outline of the human body</li> <li>• Make the heart out of Play-Doh &amp; place it on your drawn body poster using glue</li> <li>• Cut out your lungs &amp; colour them if you wish</li> <li>• Place &amp; glue your lungs onto your drawn body</li> <li>• Cut pieces of yarn in red &amp; blue to represent the arteries &amp; veins and glue them onto your drawn body</li> <li>• What does the red yarn show? (blood is full of oxygen)</li> <li>• What does the blue yarn show? (blood is out of oxygen)</li> <li>• What happens to the blood in the lungs? (It picks up oxygen)</li> <li>• Why is the heart important? (It pumps the blood)</li> <li>• Let students know that they have 25 minutes to build the model</li> <li>• The teacher (plus other adults in the room) will rotate around the room &amp; help where needed</li> <li>• Remind students to add their names to their projects</li> <li>• At the 20-minute mark, announce to students that they have 5 minutes remaining</li> </ul>	<ul style="list-style-type: none"> <li>• Students will ask any follow-up questions that they may still have by raising their hand</li> <li>• Students will add their names to their projects &amp; start to assemble while working with the teacher as they demonstrate it step by step</li> </ul>	<p>25 minutes</p>
<p><b>Closure:</b>  <b>Clean-up:</b></p> <ul style="list-style-type: none"> <li>• Tell students that time is up</li> <li>• Let students know that it is time to clean up, make sure their names are added to their models, &amp; put them over on the side counter for the glue to dry</li> <li>• Hand out the learning log paper</li> <li>• Ask students to return to their desks and do a quick Learning Log about the lesson</li> </ul>	<ul style="list-style-type: none"> <li>• Students will clean up their area &amp; get ready to continue to the next scheduled item</li> </ul>	<p>10 minutes</p>

**Organizational Strategies:**

<ul style="list-style-type: none"> <li>• Students will be coming back from recess, so they have had a good break outside for them to sit again, learn, &amp; do an activity in pairs</li> <li>• When students are at their desks, they will be asked to listen without talking</li> <li>• 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</li> <li>• Supplies will not be distributed to the students until after the instruction and right before their activity time</li> <li>• Students that are talking without raising their hand will be asked to raise their hand if they want to contribute to the class discussions</li> <li>• Students that are not cooperating or working well together during the activity and instruction will be separated</li> </ul>
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### 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 circulatory system: [https://www.youtube.com/watch?v=f9ONXd\\_-anM](https://www.youtube.com/watch?v=f9ONXd_-anM)  
Diagram of heart: <https://www.crayola.com/free-coloring-pages/print/human-heart-coloring-page/>  
Circulatory system for instruction: <https://www.teacherspayteachers.com/Product/Circulatory-System-10083844>  
Lung picture for activity: <https://www.simpleeverydaymom.com/wp-content/uploads/2018/08/lung-craft-for-preschool.pdf>  
Word search: <https://x2u6u9n4.delivery.rocketcdn.me/wp-content/uploads/2020/06/Circulatory-System-Word-Search.pdf>  
[https://wordmint.com/public\\_puzzles/1926541](https://wordmint.com/public_puzzles/1926541)  
[https://printablecreative.com/word-search/puzzle/circulatory-system#google\\_vignette](https://printablecreative.com/word-search/puzzle/circulatory-system#google_vignette)

### Extensions:

**Early finishers** can choose from word searches or play a circulatory system board game (if there are 2 finished early).

### Reflections (if necessary, continue on separate sheet):