**A Heart-y Investigation**

This lesson is designed for students in grades 4-8 and involves reading and writing informational text related to the heart and circulatory system. Students will trace the path blood takes through the heart and other structures of the circulatory system to distribute oxygen, nutrients, and other needed substances to cells and to get rid of carbon dioxide and other wastes. Students will use an informative writing style to sequence and describe this cycle.

**Standards:**

**Common Core State Standards:**

* **4th Grade**
  + **CCSS.ELA-Literacy.RI.4.2** – Determine the main idea of a text and explain how it is supported by key details; summarize the text.
  + **CCSS.ELA-Literacy.RI.4.3** – Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
  + **CCSS.ELA-Literacy.W.4.2** – Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
* **5th Grade**
  + **CCSS.ELA-Literacy.RI.5.2** – Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
  + **CCSS.ELA-Literacy.RI.5.3**  - Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
  + **CCSS.ELA-Literacy.W.5.2** – Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
* **6th Grade**
  + **CCSS.ELA-Literacy.RI.6.2** – Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgements.
  + **CCSS.ELA-Literacy.W.6.2** – Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
* **7th Grade**
  + **CCSS.ELA-Literacy.RI.7.2** – Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.
  + **CCSS.ELA-Literacy.W.7.2** – Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
* **8th Grade**
  + **CCSS.ELA-Literacy.RI.8.2** – Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.
  + **CCSS.ELA-Literacy.W.8.2** – Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

**Objective:**

* Students will be able to use an informative writing style to describe how the heart works to circulate blood around the body.

**Lesson Duration:** approximately 55-60 minutes

**Materials:**

* Building Blocks of the Human Body, specifically The Circulatory System
* Pencil
* Heart Article (1 per student)
* Heart Diagram (1 for display, optional 1 per student)
* A Heart-y Investigation Worksheet (1 per student)
* Optional: Sequence Supports

**Requisite Prior Knowledge:**

* Prior to engaging in this lesson, students should have knowledge of the circulatory system, its main structures, and its main functions. They should have a general understanding of the vocabulary words related to the circulatory system (see below). Finally, students should have experience writing in an informative style and know how to use sequence key words such as first, next, and finally.

**Assessment(s):**

* A Heart-y Investigation Worksheet

**Vocabulary:**

* Aorta – the main artery of the body
* Artery – a blood vessel that carries blood from the heart to the body
* Atrium – one of the two top chambers of the heart
* Blood – includes red blood cells, platelets, and white blood cells that supply cells with oxygen and nutrients while riding them of carbon dioxide and waste
* Carbon dioxide – waste gas that cells produce as they work
* Chamber – one of the hollow spaces in the heart
* Circulatory system – the group of organs that carries blood through the body
* Lungs – a major organ involved in the process of respiration, or the body’s process of using oxygen
* Oxygen – an essential gas that is breathed into the lungs
* Vein – a blood vessel that carries blood to the heart from the body
* Ventricle – one of the two bottom chambers of the heart

**Differentiation Considerations:**

* During writing time, consider pulling a small group of students who need more support with informative writing and sequencing. Feel free to use the Sequence Supports provided with this group or with any students who need a little extra support here.

**Lesson and Instruction:**

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| **Lesson Components and Time Guidelines** | **Teacher Actions** | **Notes** |
| **Introduction/Hook**  Approximately 5 minutes | Pique student interest by explaining that they might have heard that the heart is a blood pump, but it’s actually two pumps working together to deliver vital nutrients and other substances throughout your entire body. Explain that today we will read, diagram, sequence, and describe how blood flows through the heart and circulatory system. |  |
| **Direct Instruction and Modeling**  Approximately 10-15 minutes | Read the Heart article as a class. Consider using your preferred method of notetaking while students read.  After reading, display the Heart Diagram. Read through the caption and trace the flow of blood through the heart. If possible, use a pointer to help students see the path blood takes as it travels through the heart and to the rest of the circulatory system. Consider providing each student their own Heart Diagram so they can better follow along and trace the path on their own. |  |
| **Application Activity**  Approximately 10 minutes | Partner students and have them take turns verbally describing the path blood travels through the heart and circulatory system. Encourage students to describe whether the blood is oxygen-rich, where it is traveling, and what function is performed throughout the cycle. Each student should have an opportunity to verbally describe this path. Again, consider providing each student a copy of the Heart Diagram for scaffolded support here. |  |
| **Independent Application and Demonstration of Learning**  Approximately 15 minutes | After having an opportunity to verbally describe how the heart works to circulate blood around the body, students will transition to independent work where they will complete the Heart-y Investigation Worksheet. Here, students are asked to use informative writing, sequence key words, and Tier 3 vocabulary words to describe the path blood takes through the heart and circulatory system.  Consider pulling a small group of students for additional writing support here. Feel free to use the Sequence Supports as needed. |  |
| **Closure**  Approximately 10-15 minutes | After students have finished their writing, provide time for them to meet up with their partner from earlier in the lesson to share what they created. Encourage students to provide one positive comment as well as one area for growth to their partner.  After sharing, bring students’ attention back to the Heart Diagram and trace one final cycle through the heart, calling on students for support. Close the lesson by revisiting the objective. *Today we used an informative writing style to describe how blood flows through the heart and other structures in the circulatory system!* |  |

**Next Steps and Reflection:**

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| What went well? |  |
| What changes might be beneficial? |  |
| Reteaching needs |  |
| Extension needs |  |