Breathing & Circulation

Heartbeat Rapids with Pulseling

Learning target

Connect breathing with transport around the body.

Before you begin

Use the reference page and discussion prompts on their own, or open the optional browser adventure. No earlier lesson or physical kit is required.

For online play: use an internet-connected current browser with local storage enabled. Read the three-part Gemling briefing, answer the quick check, and apply the evidence at three checkpoints. Retry feedback supports review; results are not a secure test or gradebook.

Use for teacher-led review, science centers or partner practice. Independent readers may need support with the vocabulary below. The design target is grades 3-5; choose support based on the learner.

Vocabulary and concepts to discuss

Lungs; oxygen exchange overview; heart; blood transport

Open Heartbeat Rapids - direct lesson link

Scan the QR code or use the clickable link. This guide is usable offline; the adventure runs on an external educational website.

Breathing & Circulation - key ideas

1. The first clues

Lungs exchange gases with blood: oxygen enters the blood and carbon dioxide leaves it. Breathing moves air into and out of the lungs.

2. How the clues connect

The heart pumps blood through vessels. Blood carries oxygen and other materials to body parts and returns materials for removal.

3. Our evidence record

Our broad route is air to lungs, oxygen into blood, then transport around the body. Lungs and circulation cooperate rather than each doing the whole job alone.

Keep the science accurate

Detailed organ mechanisms, disease diagnosis and reproductive-health content are not in this six-part outline. Keep models at broad function level.

Apply the evidence

Use a specific observation from this lesson to explain one choice. Point to a clue, then connect that clue to a scientific idea.

Curriculum reference: https://www.nextgenscience.org/dci-arrangement/4-ls1-molecules-organisms-structures-and-processes

Talk through the evidence

1. Where does oxygen from air enter the blood?

Expected answer: At the lungs

Reasoning: Lungs exchange gases with blood: oxygen enters the blood and carbon dioxide leaves it. Breathing moves air into and out of the lungs.

2. Which organ pumps blood?

Expected answer: The heart

Reasoning: The heart pumps blood through vessels. Blood carries oxygen and other materials to body parts and returns materials for removal.

3. Which route fits our model?

Expected answer: Air, lungs, blood, body parts

Reasoning: Our broad route is air to lungs, oxygen into blood, then transport around the body. Lungs and circulation cooperate rather than each doing the whole job alone.

4. Why connect the two systems?

Expected answer: Gas exchange and transport work together

Reasoning: Lungs exchange gases with blood: oxygen enters the blood and carbon dioxide leaves it. Breathing moves air into and out of the lungs.

Guide the discussion

Ask learners to name the evidence that supports their answer. If an answer differs, revisit the matching key idea on page 2 and invite a revised explanation.

Online rewards: this lesson grants one fixed digital Expedition Discovery. Five saved digital Gemling friends become available only after all six distinct subject lessons are complete, in any order. Digital rewards do not establish physical ownership.