



TEACHER'S NOTES

THE CIRCULATION GAME

OVERVIEW

Aimed at **key stage 2** (9-11 years)

(Prep time 10 mins/Class time 30 mins)

Learners walk or run around a classroom-sized simulation of the human body, carrying red blood cells away from the heart and blue blood cells back from organs. Once the learners are circulating smoothly, some are given sickle cell cards, causing congestion in the system. Returning to their desks, learners watch a film about a boy who has the condition. They also label and colour a diagram of the circulatory system.

LEARNING OBJECTIVES

- To describe the function of the heart and the process of blood circulation around the body
- To recognise and respect how medical conditions affect people's daily lives

CURRICULUM LINKS

- Scientific and technological understanding: apply knowledge and understanding to describe and explain the structure and function of key human body systems
- Understanding physical development, health and wellbeing: recognise and respect similarities and differences between people

you will NEED

- A set of **Blood cell cards** for each organ group
- Red and blue felt tips or colouring pencils
- A **Let's circulate** sheet for each learner
- Internet access

Activity

- Start by exploring the concepts of blood and your heart. Ask what happens when you cut your finger. Where does the blood come from? How does it get to your finger? What would happen if you didn't stop bleeding?
- Explain that we all have blood in our bodies and that every part of our body needs blood in order to keep working. The heart pumps blood around your body, like a milkman delivering bottles to everyone's house. When blood leaves the heart it is full of oxygen. When it comes back from your finger, your brain or your stomach, the oxygen has been used up (a bit like a milkman collecting empty bottles and taking them back to the dairy). Ask the class to think of all the different places in your body where blood might be pumped to and from. Answers could include your brain, your stomach, your eyes, your ears, your fingers and toes, your arms and legs...
- Say that you are going to set up a giant body in the classroom. Ask two learners to be the heart, sitting in the centre of the room with a pile of ordinary red blood cell cards. Select four or five of the body areas or organs the class suggested and set these up around the room. Ask a pair of learners to sit at each desk and give them a pile of blue blood cell cards. Explain that blood coming back from your organs or muscles travels in your veins. If you look at the veins under the skin in your wrist they appear blue, but the blood inside them is still red.



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THE CIRCULATION GAME

Activity

continued

- The rest of the class should walk or run around the classroom, carrying blood cells to and from the heart. Ask them to pick up a red blood cell card from the heart, go to one of the other body areas, swap it for a blue card and come back. When they return to the heart, they swap the blue card for another red card and set off again.
- Once the system is working well, add sickle-shaped blood cell cards into the packs of 'blue' blood cells. If a learner is given a sickle cell, they must stop before they reach another body area and stand still (because sickle-shaped blood cells often get stuck in blood vessels). See how quickly the whole system clogs up, before asking the class to guess what they think happens to people who have sickle-shaped blood cells?
- Explain that you can find out the answer by watching a film about a boy called Tamilore, who has Sickle Cell. Watch Tamilore's video story at:
<http://www.genesareus.org/filmlibrary/tamiloresstory>
- Learners can also complete the **Let's circulate!** worksheets. They should name the organs and body parts shown and draw arrows to show how blood travels around the body. They may colour the blood vessels leaving the heart red, and the veins which return it to the heart blue.

EXTENSION

- Use toilet roll tubes to listen to each other's hearts. Learners work in pairs to each count the number of beats in a minute. They then run on the spot for a minute and repeat. What has changed?

FURTHER information

This simple animation shows how your heart pumps faster when you do more exercise:

www.ictgames.com/bodyrunner.swf

This detailed interactive lets learners explore and understand the heart:

www.mystery-productions.info/hyper/Hypermedia_2003/Abboushi/Artefact/index.html

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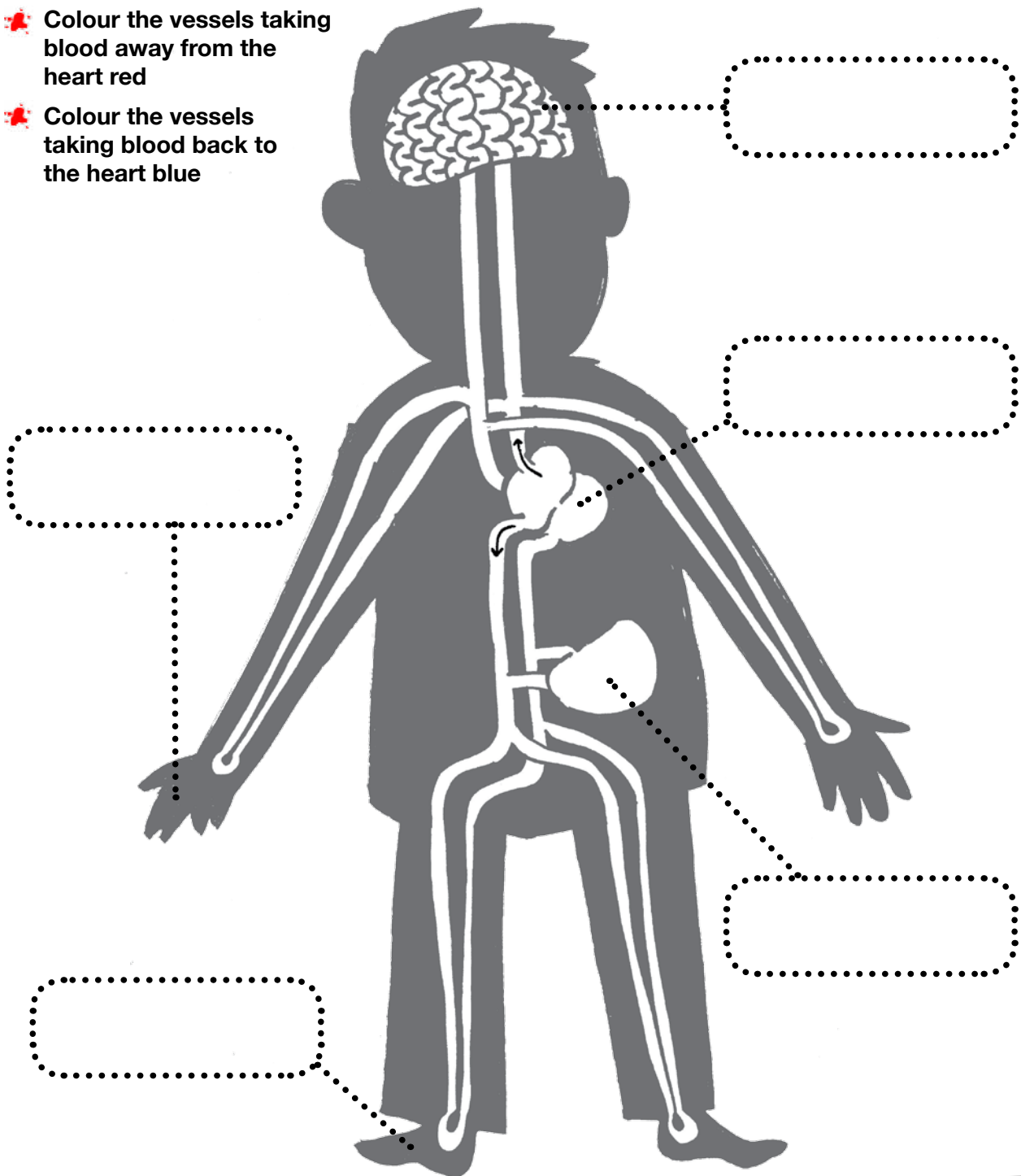
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LET'S CIRCULATE

Can you show how blood moves around the human body?

-  Fill in the labels to show the different parts of the body
-  Use arrows to mark the direction of blood flowing to and from the heart
-  Colour the vessels taking blood away from the heart red
-  Colour the vessels taking blood back to the heart blue



heart

brain

stomach

feet

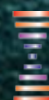
hands

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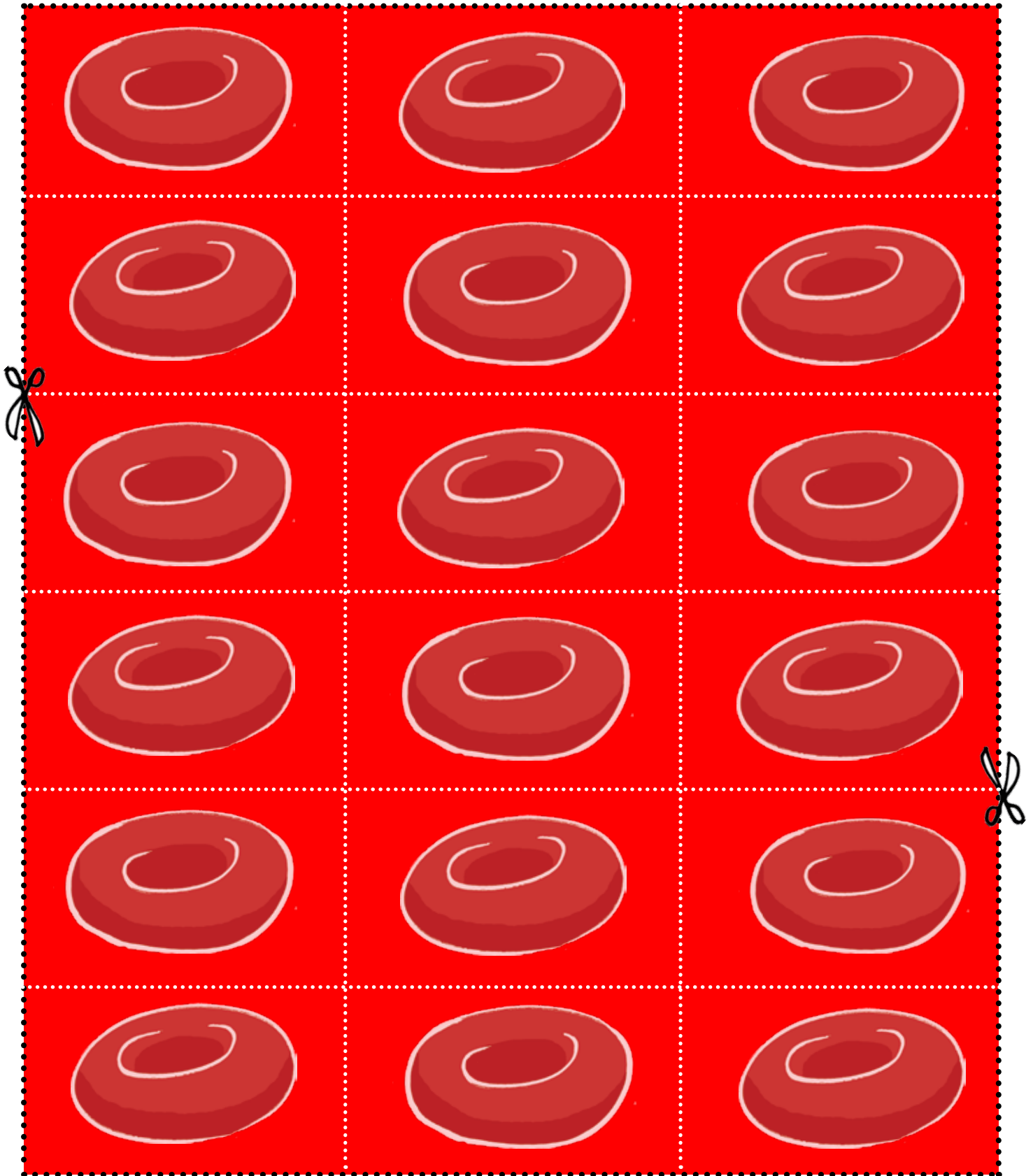
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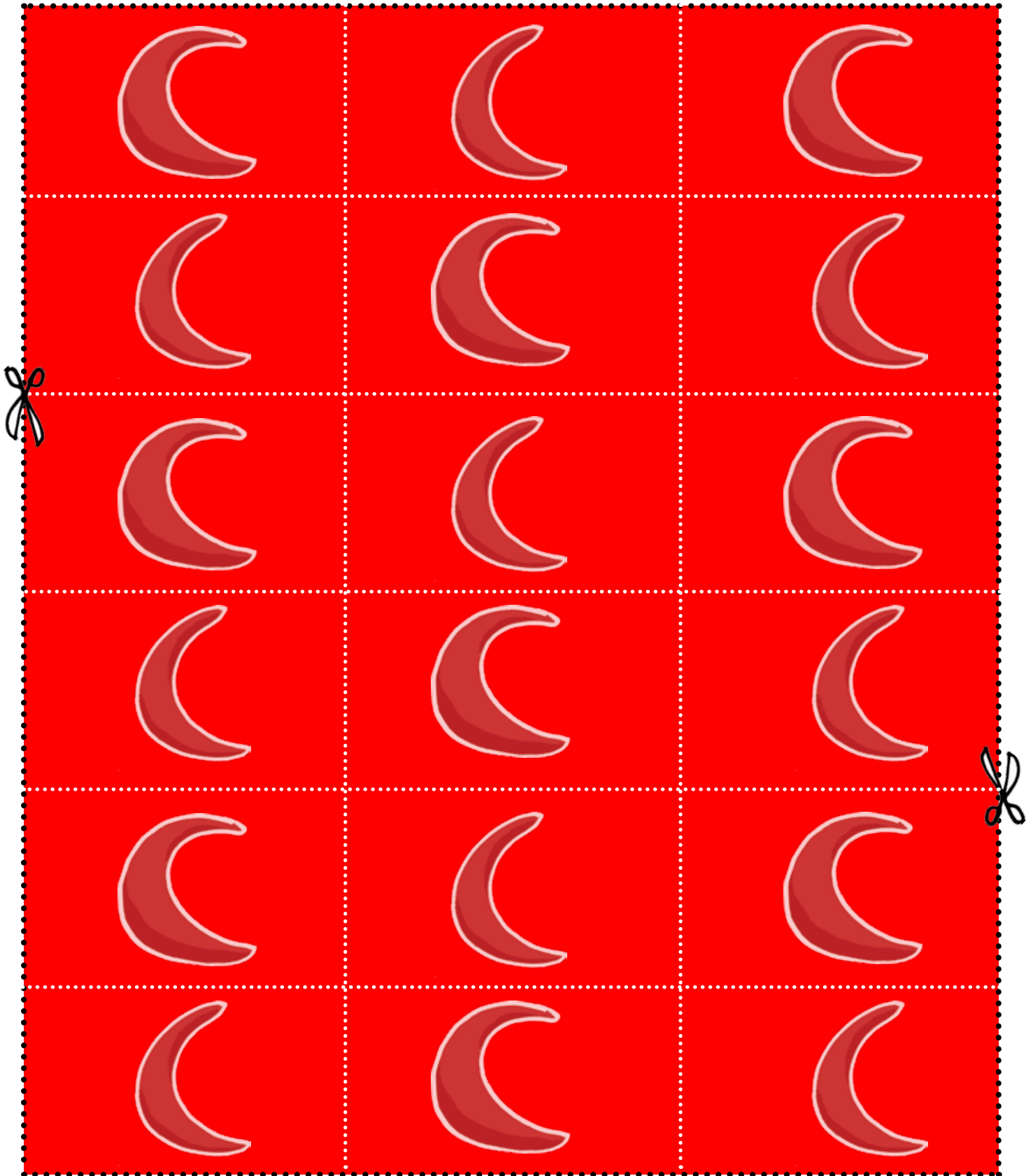
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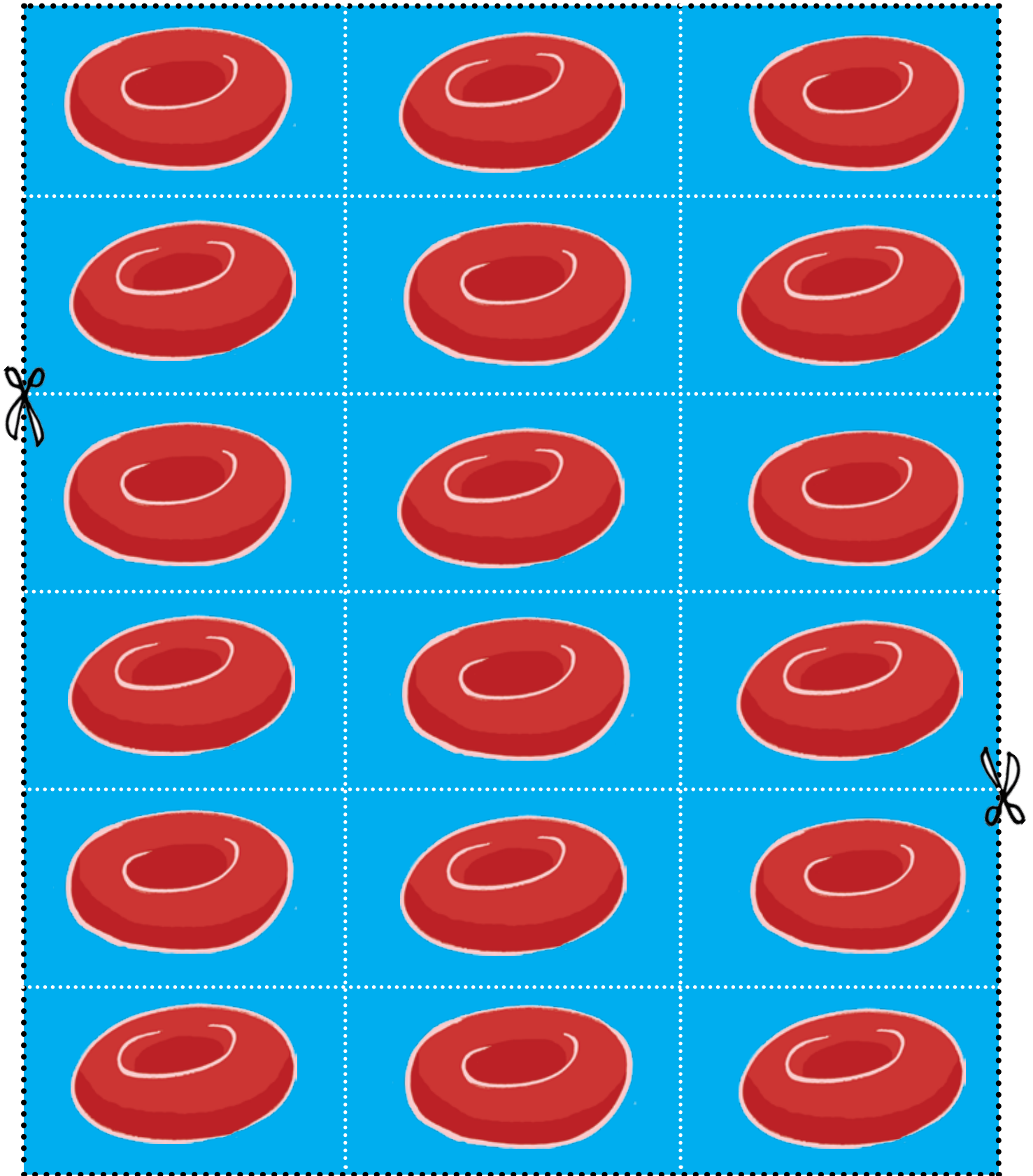
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