

METABOLISM

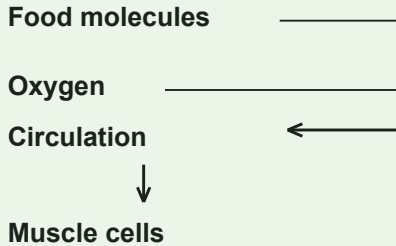
Grade 7 Science | Free One Page Study Guide



Read | Annotate | Find evidence | Analyze | Eliminate and justify

1 Connect body systems

7-MS-LS1-3



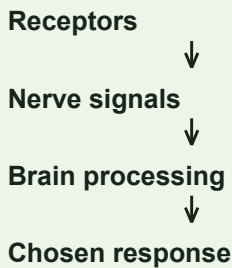
What we did. We moved food and oxygen tokens through connected system cards.

Why it works. Digestion, gas exchange and circulation supply cells; cells form tissues and organs within systems.

Apply what you know. Which two pathways support a claim that systems interact?

2 Follow information signals

LA 7-MS-LS1-3
NGSS MS-LS1-8



What we did. We passed a signal marker for a quiet sound and a chosen turn.

Why it works. Receptors detect input; nerve signals reach the brain. Processing can lead to behavior or memory.

Apply what you know. How does a nerve signal differ from oxygen carried in blood?

3 Trace matter and energy

7-MS-LS1-6

Photosynthesis

$\text{CO}_2 + \text{water} \rightarrow \text{sugar} + \text{O}_2$

Light supplies energy.

Aerobic respiration

$\text{Sugar} + \text{O}_2 \rightarrow \text{CO}_2 + \text{water}$

Energy for cell work + heat

What we did. We traced carbon counters and used a separate energy marker.

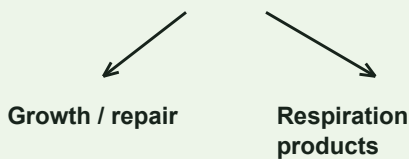
Why it works. Atoms are reused; energy enters as light and transfers for cell work and as heat. Plants also respire.

Apply what you know. Why is light not the source of carbon atoms in sugar?

4 Model food matter uses

7-MS-LS1-7

Smaller food molecules



Atoms rearrange; energy transfers.

What we did. We regrouped atom tiles and drew two food-matter pathways.

Why it works. Food supplies atoms for growth or reactions that transfer energy. Aerobic uses oxygen; anaerobic pathways do not require it.

Apply what you know. Why must every atom tile remain after regrouping?