WIVOZA · LESSON DEBRIEF

Cellular respiration: where a cell's energy comes from • 3

Biology · Oct 14, 2026 at 10:05 AM · 9th · 22:38

NEXT LESSON, TRY THIS

Your "what if the cell had no oxygen?" question got students reasoning.

After a student answers, ask one more "why?" before you move on.

TRY NEXT TIME

The rest of what this report suggests, alongside your one focus.

MOMENT TO REVISIT

Ask it, give pairs thirty seconds to write a one-line guess, and take two answers before you explain.

TALK & PARTICIPATION

Before explaining the group task, ask pairs to predict which stage stops first without oxygen, then build your explanation around their answers.

QUESTIONING & CHECKING

After the yeast question, add one follow-up "why does that make the dough rise?" before moving on.

W

The lesson covers cellular respiration — how cells turn glucose and oxygen into usable energy — moving from a modelled walk through the equation to small groups predicting what happens when oxygen runs short.

Your "what if the cell had no oxygen?" question gave students something to reason with: several answers reached for the oxygen at the end of the chain on their own when explaining fermentation.

Next time, you could follow one glucose molecule through each stage on the board, so students see where the energy actually leaves rather than reciting the equation.

How the lesson moved

OPENED WITH
Recapping photosynthesis
`0:00–7:09`

BUILT
Walking through the respiration equation
`7:09–10:48`

APPLIED TO
Groups predicting a cell short of oxygen
`10:48–end`

TEACHER TALK
39 %

STUDENT TALK
16 %

GROUP TALK
35 %

SILENCE
9 %

PACE
214 wpm

QUESTIONS
6
+ 1 you answered

CHECKS
1

How to read these numbers ▾

Teacher Talk · the share of the recording with your words; a student's answer the conversation shows was theirs is not counted in it.

Student Talk · the share of the recording with students' words the microphone caught, including answers the conversation shows were theirs. Students it couldn't make out aren't in it.

Group Talk · voices the microphone caught but couldn't turn into words, usually students talking together or too far away; other room sound is counted here too.

Silence · no talk: quiet work, pauses, a settled room.

Pace · your words a minute, short pauses included. Everyday conversation usually runs about 120–160.

Questions · the questions you asked, as the transcript caught them.

Checks · the times you checked for understanding, as the transcript caught them. It counts the checks, not whether students understood.

KEEP DOING

4 of your questions asked students to explain or reason, not just recall.

"Why do you think the cell needs oxygen at the very end of the chain?" `18:47`

Building the equation up one molecule at a time — glucose in, oxygen in, then asking where the carbon goes — makes reactants and products something students track rather than copy down.

FROM CLARITY & CONTENT

Content Specialist

How you taught it, read by a specialist.

✦ How you taught biology, read by a specialist

Specialist notes · 5

What a biology specialist would want you to know, from excerpts of this lesson.

What worked 5:19

Building the equation up one molecule at a time — glucose in, oxygen in, then asking where the carbon goes — makes reactants and products something students track rather than copy down.

“so glucose comes in, oxygen comes in. Good. And then where does the carbon end up? Carbon dioxide, very good. So we're breathing out the carbon from the sugar we ate. Okay? Oh, I actually also said the”

What worked 7:34

Naming all three stages — glycolysis, the Krebs cycle, the electron transport chain — right before the group task is a nice anchor: students know the full set they are reasoning across, which makes “which stage stops first?” more solvable.

“that walks through each of the three stages”

Where it could go further 9:05

The sprint example is a strong bridge to fermentation — next time you could have groups predict what a muscle cell does when oxygen runs short before you name lactic acid, so the idea comes from their reasoning rather than your explanation.

“Cells get their energy in a few different ways. Sometimes there's plenty of oxygen. Sometimes, like in a sprint, the muscle runs short. And in the case of the muscle cell, the yeast and the bacteria,”

Where it could go further 13:00

Having students define “ATP” in their own words is a good vocabulary check — you could extend it by tracking a single glucose molecule through each stage, so students see where the energy actually leaves.

“me. Circle the stage that makes the most ATP. So what was the big one? And for the next part, number two, define ATP in your own words. I'm gonna give you guys five minutes to just work on the glycolysis part.”

Where it could go further 5:43

When photosynthesis comes up in the recap, showing how the two equations mirror each other could help it land, so respiration doesn't feel like a separate topic from the one students just finished.

"But about plants, I meant, like, mainly the leaves. Yep. So they make a lot of sugar. We'll do mitochondria then."

Where students get stuck · 3

Common misconceptions on this topic — you may well have covered them.

Misconception

Many students think plants photosynthesize instead of respiring; asking what a plant does at night surfaces the idea that plants respire all the time.

Misconception

Learners often treat energy as a substance stored inside ATP, so describing ATP as a carrier that moves energy, not the energy itself, is worth making explicit.

Misconception

Students sometimes hear "respiration" as "breathing," so separating the lungs' gas exchange from the chemistry inside every cell prevents a one-word confusion.

1

Talk & Participation

Who was heard, and for how long.

W

Teacher talk ran well ahead of student talk in what the microphone caught, with several extended stretches of you explaining the equation, the three stages, and the group task — explanatory talk rather than rapid-fire pacing.

Students got the floor mainly through a couple of read-aloud moments and brief responses to direct questions; what else was said in group work during the prediction task is likely underrepresented here, since small-group talk is hardest for a single microphone to pick up. This doesn't tell us whether the room was quiet or simply out of the mic's reach — only you know which.

Teacher Talk
8 min 49 s
39% · your words, and pauses between them
See the transcript

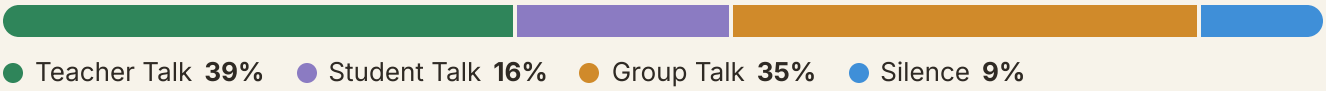
Student Talk
3 min 40 s
16% · students' words the recording caught
See the transcript

Group Talk
8 min 2 s
35% · voices with no clear words, most often students talking together

Silence
2 min 7 s
9% · no talk: quiet work, pauses, a settled room

Pace
214
your words a minute · conversation usually runs 120–160

Your recording, minute by minute 22:38



Teacher Talk **39%** Student Talk **16%** Group Talk **35%** Silence **9%**



0:00 22:38

"Teacher Talk" and "Student Talk" are seconds with your words or a student's, and the short pauses between them — who said what is read from the conversation as well as the voices, so a student's answer inside your line counts as theirs. "Group Talk" is voices with no clear words, most often students talking together; other room sound is counted here too. "Silence" is no talk at all.

Your longest stretch **1 min 36 s**

FROM THE STRETCH 7:08–8:44

“we're going to be doing a little lab. This is going to be a two day thing. So”

7:08 So

7:09 what we got today,

7:17 this will take a day? Two days. I got it. Can you pass out... Tell you what. You can pass out the yeast cups. Can I pass out some?

7:25 This half of the room. So, not right now. So what we got... This will probably be done both today and tomorrow. What we're gonna do is that we're actually gonna look at a model

7:34 that walks through each of the three stages

7:37 of the three stages we talked about. We

7:39 talked about glycolysis... in the cytoplasm. We've talked about the Krebs cycle, and we've talked about the electron chain.

7:45 So what we're gonna do, okay.

7:47 Wait. Don't open those yet. They need to sit for a minute. Okay.

7:54 So what we're gonna do, we're gonna have a little lab. I'm gonna explain the steps in a bit. So, basically, just go over how all three of these stages work. Then for today and tomorrow, we're gonna watch the yeast and see if you guys can

8:06 figure out which of the

8:10 three stages keeps running when the oxygen is gone. We'll go through the first part first, and then we will... Thank you. And then we will go through the lab. So first things first,

8:23 What you guys should have

8:25 is a packet that goes over the lab. The front page should be a

8:31 series of diagrams. So here are the steps. Okay.

8:36 So first off,

8:38 we're going to set the stage. Does anybody here wanna read, like, this little sentence up here real quick? Let's go. Go ahead. Throughout

A stretch ends when a student is heard or you pause for more than ten seconds. A student the microphone missed does not end it.

KEEP

You asked a student for their reasoning, not just the answer.

“With that in mind, what happens inside a muscle cell during a sprint?” 19:44

TRY NEXT TIME

Before explaining the group task, ask pairs to predict which stage stops first without oxygen, then build your explanation around their answers.

2 Questioning & Checking

What you asked, how you checked, and how you responded.

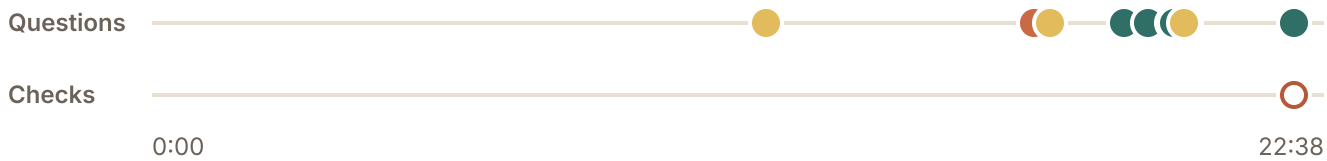
W Of the questions asked, several were invitations to read or volunteer rather than probes into content, and at least one placed the thinking back on you rather than leaving it with students — after asking “So which two go in? Which two?” you supplied the answer yourself rather than waiting it out.

Where you did leave a pause, students had room to gather a fuller response before the question moved on. It’s not clear from the recording how many of your questions pushed into reasoning versus simply directing attention or inviting a reader.

Your questions and checks

6 questions + 1 you answered · 1 check

4 of 6 asked for more than recall. Plus 1 you answered yourself before a student could. You checked for understanding 1 time.



Recall · 2 of 6

Retrieved from memory — a fact, name or step they already had.

“[name], what do you think the word aerobic means?” 19:41

“Yeah. Without oxygen the cell switches to what?” 19:58

Explain & reason · 4 of 6

Asked for more than a fact: explain, interpret, apply, compare, judge or create.

“Why do you think the cell needs oxygen at the very end of the chain?” 18:47

“So which of the three stages would stop first if the oxygen ran out?” 19:14

“With that in mind, what do you think happens inside a muscle cell during a sprint, or what’s the most likely thing it does?” 19:44

“So who can explain why yeast makes bread dough rise?” 22:02

Answered yourself · 1

You asked, and gave the answer before a student could.

“So which two go in? Which two?” 17:00

Follow-up · 3

Right after a student answered, you pushed on what they said.

“Why do you think that is?” 11:52

“So what does aerobic mean” 17:20

“Can you say more about where the carbon goes?” 19:56

Checks for understanding · 1

Moments you asked students to show or say what they understood. No response to the answers was heard.

Check for understanding 22:02

“So who can explain why yeast makes bread dough rise?”

Also heard, not counted as questions: 1 “right?” / “okay?” tag

“right?” 14:23

KEEP

4 of your questions asked students to explain or reason, not just recall.

“Why do you think the cell needs oxygen at the very end of the chain?” 18:47

TRY NEXT TIME

After the yeast question, add one follow-up "why does that make the dough rise?" before moving on.

Goal: 5 of 9 answers followed up, up from 3.

3 Clarity & Content

What the lesson said it was about, in its own words.

How the lesson moved

OPENED WITH	BUILT	APPLIED TO
Recapping photosynthesis 0:00–7:09	Walking through the respiration equation 7:09–10:48	Groups predicting a cell short of oxygen 10:48–end

From your lesson

2 moments

What you did to make the content clear, in your own words.

Examples & explanations · 1

How you introduced the content and made it approachable — examples, analogies, meanings, thinking aloud.

Gave an example — 5:19

“So the glucose gets split in half first, before any oxygen is even involved, and that split is glycolysis.”

Real-world connections · 1

Links you made to other texts, lessons, or students’ lives.

Connection — 7:00

“Think about how your legs burn at the end of a sprint in gym.”

Academic vocabulary

OPTIONAL

3 of 5 key terms were heard from students.

● You ● Students Each dot = one time said

STUDENTS USED THESE · 3

glucose	●●●●●●●●●	●●
mitochondria	●●●●●●●	●●●

ATP	●●	●

ONLY YOU SAID THESE · 2

electron transport chain	●●●●●	not heard
fermentation	●●●	not heard

KEEP

Building the equation up one molecule at a time — glucose in, oxygen in, then asking where the carbon goes — makes reactants and products something students track rather than copy down.

“it ends up as carbon dioxide. Very good. So the glucose gets split in half first, before any oxygen is even involved,…” 5:19

TRY NEXT TIME

The sprint example is a strong bridge to fermentation — next time you could have groups predict what a muscle cell does when oxygen runs short before you name lactic acid, so the idea comes from their reasoning rather than your explanation.

4

Climate & Routines

Directions, praise and redirections, as they sounded.

W

Transitions were handled directly: when conversation got out of hand during group work, you named it plainly (“Voices off while I explain”) and moved the class along rather than letting it stall the lesson. Directions were layered clearly, naming the task, steps, and timeframe together for the prediction task.

You called on students by name repeatedly and opened the floor for volunteers to read aloud, which invites participation beyond just the loudest voices. Quieter encouragement or a settling look wouldn’t show up here, so this is only what carried to the mic.

From your lesson

11 moments

How your words set up the work, kept it on track, and encouraged students.

Directions & routines · 1

You set up 1 activity.

How you set up each activity, in your own words, then the shorter directions about materials, help and timing.

Set up · Walking through the respiration equation 7:54

“So here's what we're going to do. I'll hand out the cell cards in a second. Your group reads the three stages, then decides which one stops first when the oxygen runs out, and why. You've got ten minutes, and then one person from each group reports back.”

Repeated redirections · 7

Your words correcting behavior, each filed under what it was about. One correction tells little; the same one coming back is worth a second look.

Repeated reminders about talking

“You two, if I have to stop again for the side conversation, you’ll be moving seats.” 13:14

Across the lesson, from 9:47 to 20:16, you returned several times to asking students to stop talking.

More evidence ▾

“I don’t want to start moving seats.” 13:55

“Voices down, everybody.” 20:16

No speech was captured from 0:00 to 4:29.

Behavior corrections in this lesson

Talking 9:47
Too short or unclear to quote on its own.

Talking 13:14
“You two, if I have to stop again for the side conversation, you’ll be moving seats.”

Getting back to work 13:45
“This part is on your own, please.”

Talking 13:55
“I don’t want to start moving seats.”

Staying in seats 18:25
“Folks, why are we up and walking around?”

Talking 20:16
“Voices down, everybody.”

Attention 22:16
“Eyes up front, back table.”

Encouragement & respect · 3

1 of the 2 times you responded to a student named what was right or wrong.

What your words recognized, invitations to ask for help, and how you responded to mistakes.

Named what was right 19:21
“Yeah. Carbon dioxide. So the carbon leaves as a gas you breathe out.”

Responded to a mistake 17:23
“No. Light has nothing to do with it. That’s photosynthesis, not this.”

General praise 19:44
“Lactic acid. Very good.”

KEEP

You named what was right, not just “good”.

“Yeah. Carbon dioxide. So the carbon leaves as a gas you breathe out.” 19:21

This report reflects what could be heard in your recording — talk patterns, questioning, and classroom routines. It doesn't capture lesson planning, materials, physical space, visual engagement, or anything outside class time. Automated counts above are suggestions to confirm or edit, not final judgments. Audio is never saved: it's sent once for transcription and discarded, and only the transcript and these insights are kept.