Better Feedback in the Science Classroom

FEEDBACK
FOCUS

ABOUT THIS RESOURCE

Effective feedback is an essential component of the learning process, moving students forward in their learning by helping them understand their progress and recognize areas for improvement. Effective feedback is constructive, with a goal beyond grades, fostering student growth and engagement.

No matter the science discipline or assignment, effective feedback has certain characteristics: it is specific, actionable and timely, focused on improvement, and encourages self-assessment with a growth mindset.

HOW TO USE THIS RESOURCE

This resource includes three sections: an overview, exercise, and feedback printable.

OVERVIEW

In this overview, each of the six characteristics of effective feedback is followed by an explanation and examples of how to reframe less effective feedback to make it more effective. The six characteristics are also linked below:

1. Be Specific
2. Focus on Improvement
3. Encourage Self-Assessment
4. Encourage a Growth Mindset
5. Make it Actionable
6. Be Timely

EXERCISE

In the exercise that follows, brainstorm how to apply these concepts in your own classroom. How might you reframe the verbal or written feedback that you provide? How can you adapt or improve your current practices? What support do you need to implement effective feedback routines in your classroom?

PRINTABLE

Print a copy of this infographic and post it in your classroom as a reference and reminder.

OVERVIEW

Be Specific

Avoid generic phrases. Instead, provide specific feedback that highlights the strengths of the student's work and areas for improvement. Offer concrete examples as much as possible.

Instead of this...	Try this...
'Good job!' or 'Follow Directions.'	"The introduction of your lab report includes a detailed hypothesis that demonstrates critical thinking. The hypothesis could be better supported by including a discussion of background research that led to the development of your hypothesis."

Focus on Improvement

Keep the focus of your feedback on what can be improved, rather than solely pointing out errors. Giving constructive feedback allows students to recognize opportunities to move forward with their work.

Instead of this...	Try this...
"Your data section is insufficient."	"The data in your lab report is easy to read and well organized. In the future, be sure to include graphs, which help readers better understand the relationship between the investigated variables."

Encourage Self-Assessment

Use your feedback as a platform for fostering self-reflection. Where possible, incorporate questions that prompt students to evaluate their progress and derive their own assessment of their work. (Help students learn how to move forward when they receive feedback with our Feedforward Strategies resource.)

Instead of this...	Try this...
"The conclusion section once again lacks evidence supporting the determination about whether the hypothesis was supported or rejected."	"The methods section is detailed and provides enough information so that the steps of your experiment could be replicated. What additional elements could be added to help the reader visualize the experimental setup?"

Encourage a Growth Mindset

Frame your feedback as a tool for growth rather than only evaluation. Incorporate specific examples where the student has demonstrated progress or improvement. (Help your students evaluate their mindsets with our Four Corners Growth Mindset Evaluation.)

Instead of this...	Try this...
"Missing data."	"This discussion section does a much clearer job of identifying how the results relate to your hypothesis. Continue to explicitly discuss how specific data does, or does not, support your hypothesis."

Make it Actionable

Provide actionable suggestions that provide clear guidance for students on how to improve their work. Break down your feedback into specific steps or strategies that students can use so they will have a clear understanding of what you are asking them to do.

Instead of this...	Try this...
"Citation format is incorrect."	"Let's continue to work on your in-text citations. Remember that in-text citations are included within the sentence where the concept is referenced (usually at the end), not listed at the end of a paragraph."

Be Timely

Provide timely, high-quality feedback to students as soon as possible. Ensure that students receive feedback before they move on to another assignment requiring the same skills.

Instead of this...	Try this...
Returning lab reports with comments to students three weeks after completion.	Chunk your review of lab reports and choose a more narrow feedback focus. Tell students that instead of closely assessing the entire lab report, your feedback will focus on the Data Analysis and Conclusions section. For subsequent reports, focus on a different section or specific skill. Targeted feedback makes it easier to give timely feedback.

EXERCISE

Be Specific	
What does it mean?	**What could it look like in my classroom?**
Avoid generic phrases. Provide specific feedback that highlights the strengths of the student's work and areas for improvement. Offer concrete examples as much as possible.	

Focus on Improvement	
What does it mean?	**What could it look like in my classroom?**
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Encourage Self- Assessment	
What does it mean?	**What could it look like in my classroom?**
Utilize your feedback as a platform for fostering self-reflection. Where possible, incorporate questions that prompt students to evaluate their progress and derive their own assessment of their work. (Help students learn how to move forward when they receive feedback with our Feedforward Strategies resource.)	

Encourage a Growth Mindset

What does it mean?	What could it look like in my classroom?
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Make it Actionable

What does it mean?	What could it look like in my classroom?
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Be Timely

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PRINTABLE

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