

# Grading (and Feedback) in the Sciences

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**Teaching Fellow (TPULSE)**

Saturday November 10th, 2018



# Learning Objectives

At the end of this session, you will be able to:

1. **Explain** the rules of academic integrity
2. **Discuss** the necessity and importance of grading in higher education

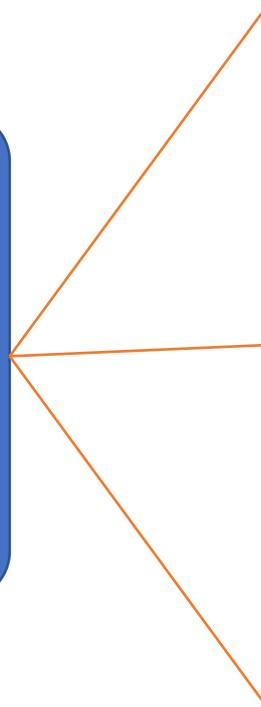
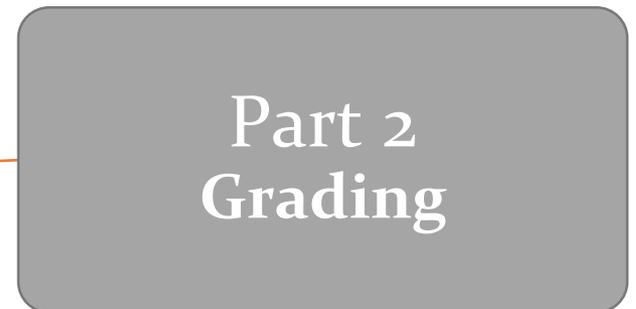
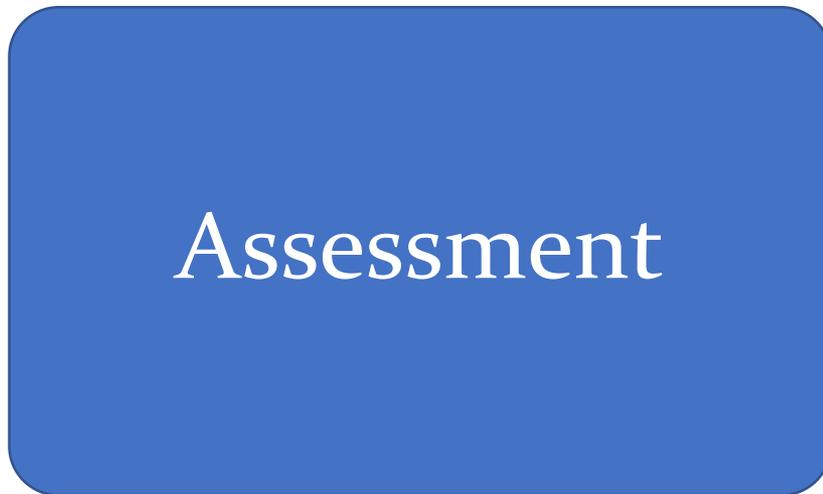
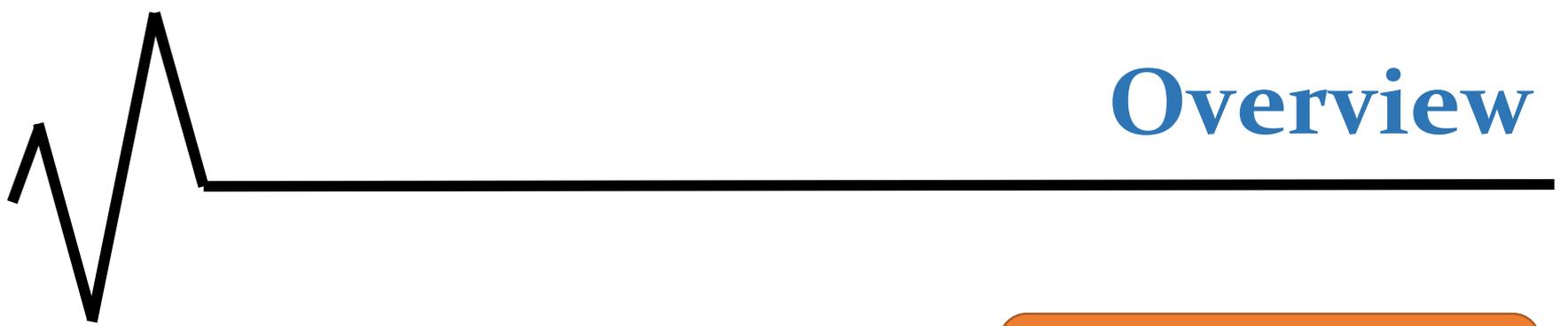


# Learning Objectives

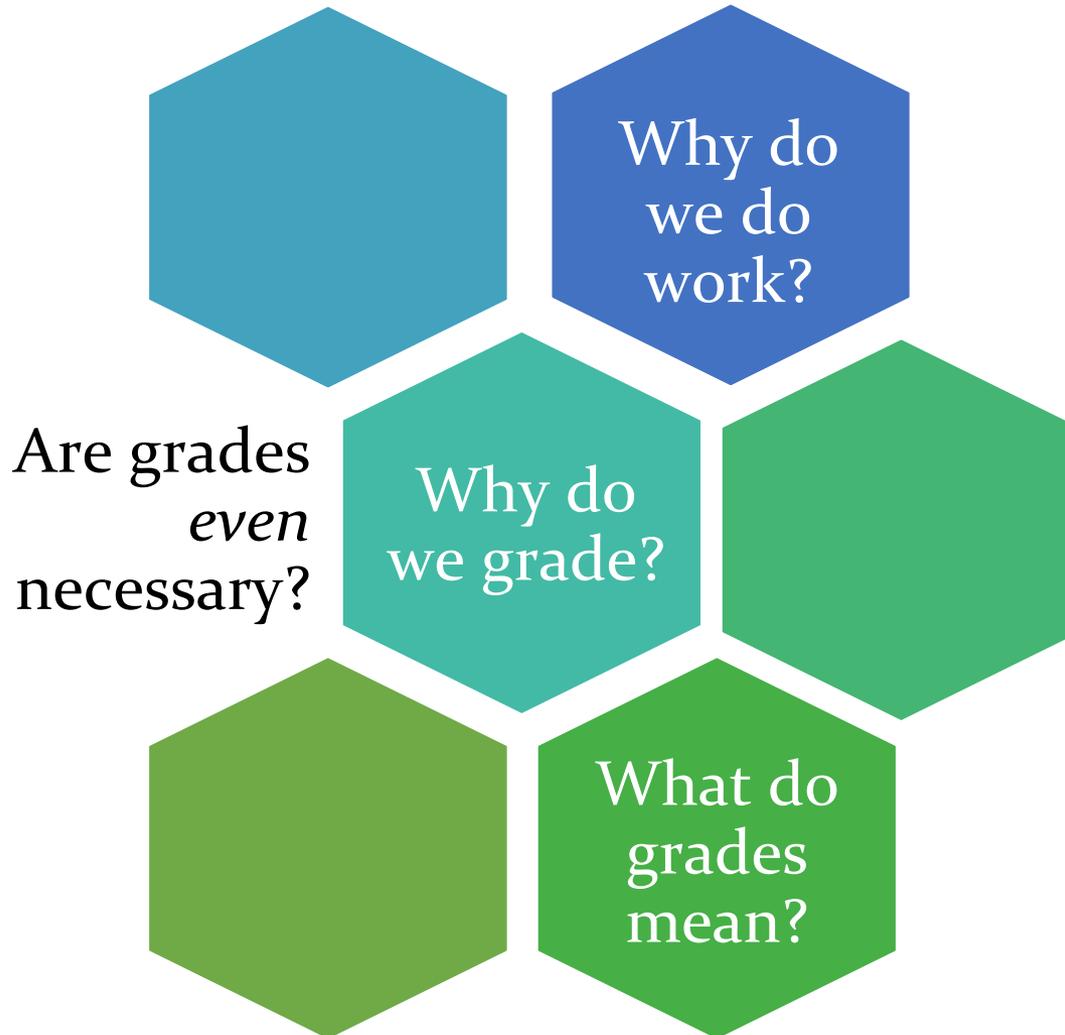
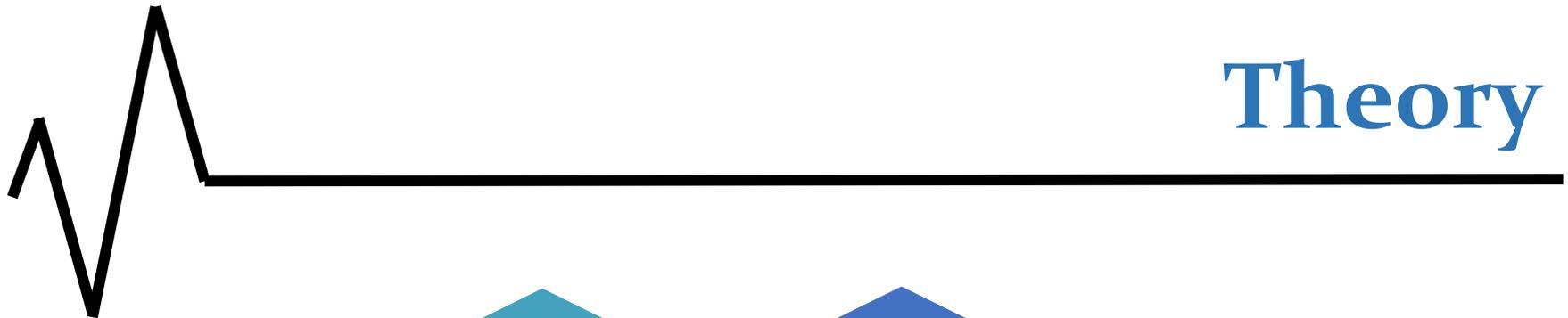
At the end of this session, you will be able to:

1. **Explain** the rules of academic integrity
2. **Discuss** the necessity and importance of grading in higher education
3. ***Determine*** reasons for developing criteria and standards for grading
4. **Use** a rubric to grade students' responses
5. **Deliver** constructive feedback

# Overview



# Theory



# Theory

Do we  
want  
direction?

Why do  
we do  
work?

Are grades  
*even*  
necessary?

Why do  
we grade?

What is  
an "A"?

What do  
grades  
mean?

Who am I to  
judge your  
work?

# Theory

Do we  
want  
direction?

Why do  
we do  
work?

Checkmark,  
sticker or  
smiley face?

Are grades  
*even*  
necessary?

Why do  
we grade?

Do we  
want help?

What is  
an "A"?

What do  
grades  
mean?

Who am I to  
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work?

# McGill Students

Common “Types”



Deep

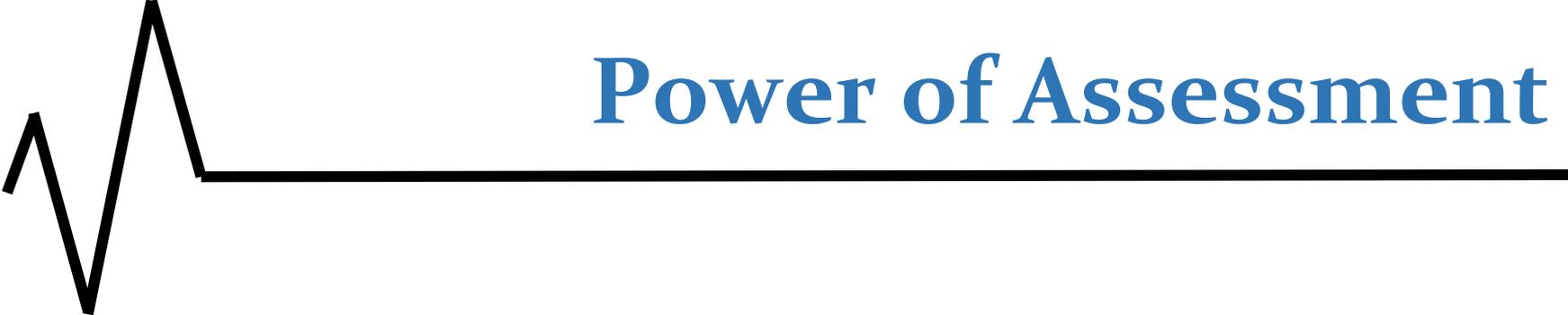
Strategic

Surface

# Power of Assessment

Assessment shapes the way our students approach learning. It can influence how they do their homework, how they study, and how they collaborate.





# Power of Assessment

Assessment shapes the way our students approach learning. It can influence how they do their homework, how they study, and how they collaborate.

**We can use feedback & grading to improve the learning experience & performance of students!**

# Academic Integrity



A.I.

# Academic Integrity

McGill University

1. McGill Policy: **do not accuse the student.**

*“If you are a teaching assistant, you should report the incident to the course instructor, who should report it to [a] disciplinary officer.”*

2. Prevention is possible

- Be vocal about how plagiarism hinders learning.
- Establish dialogue with course supervisor.
- Reduce their stress

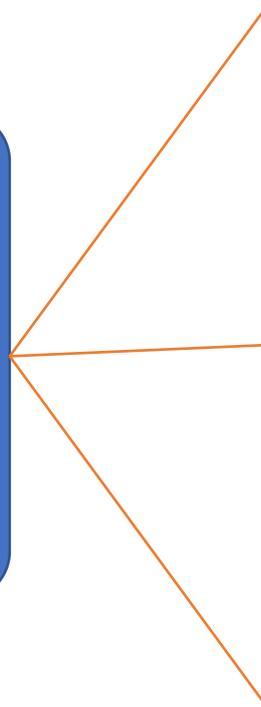
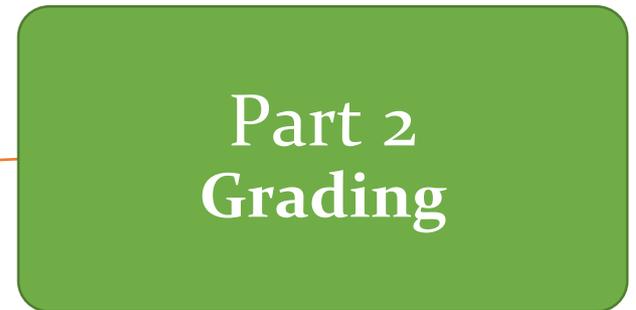
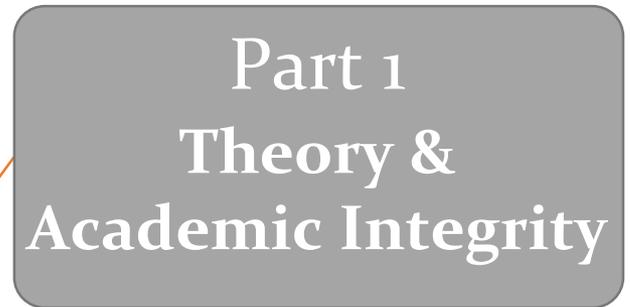
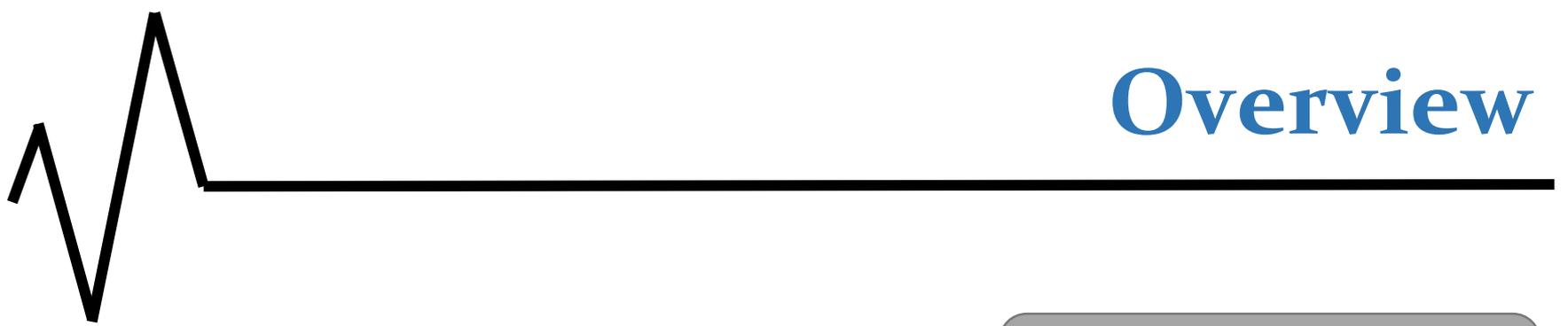
3. Resources:

- Dean of students:

<http://www.mcgill.ca/students/srr/honest/staff/student>



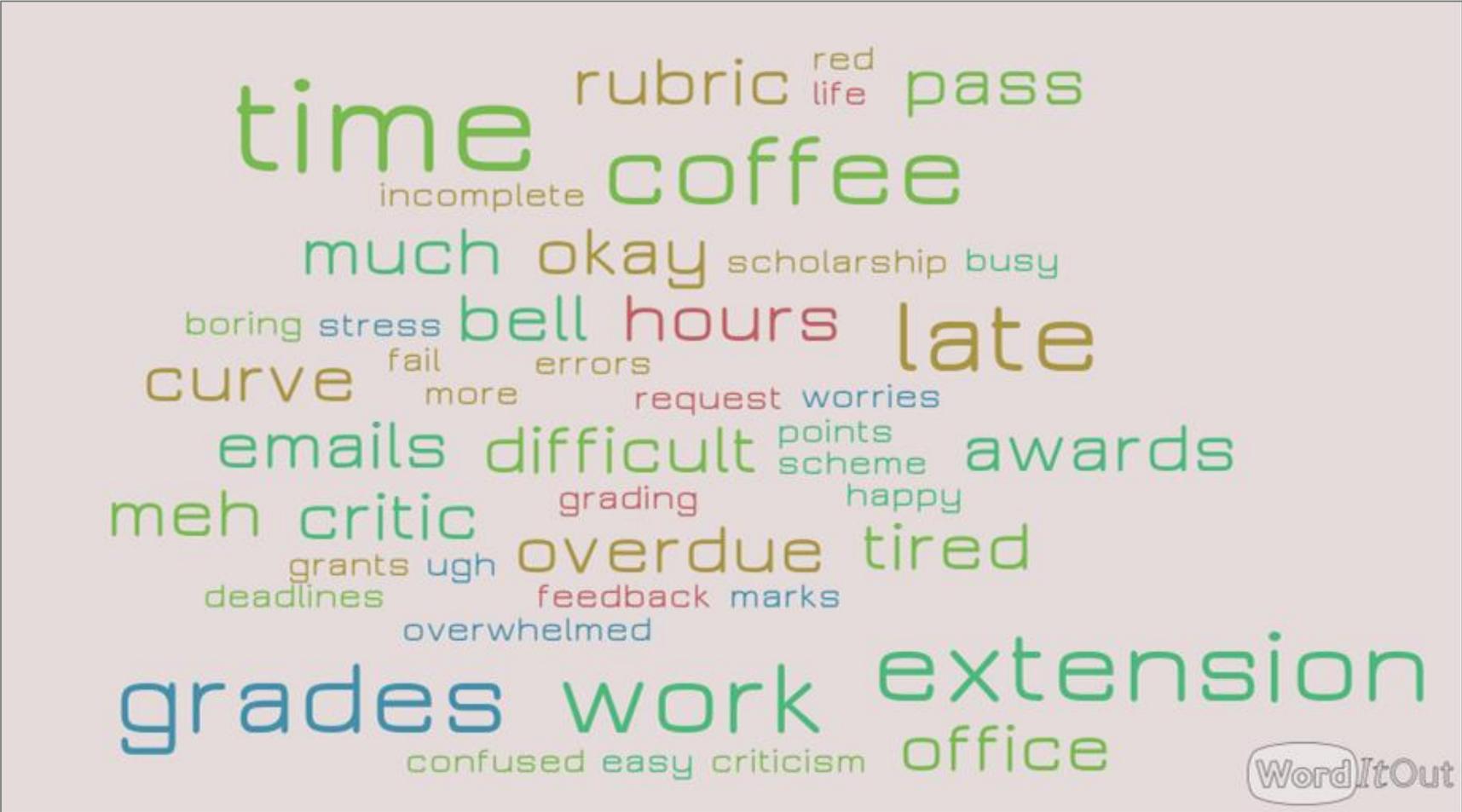
# Overview

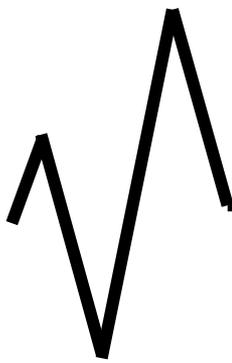




# Grading

TA concerns





# Grading

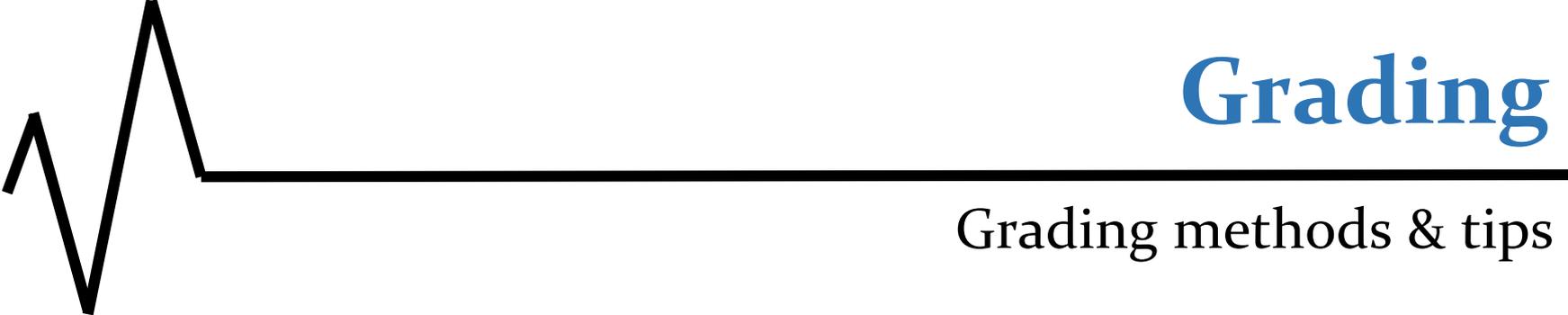
TA concerns

2 minutes

What are your **concerns** about grading ?

**Team A:** Answer the question from an undergraduate student's perspective.

**Team B:** Answer the question from a TA's perspective.

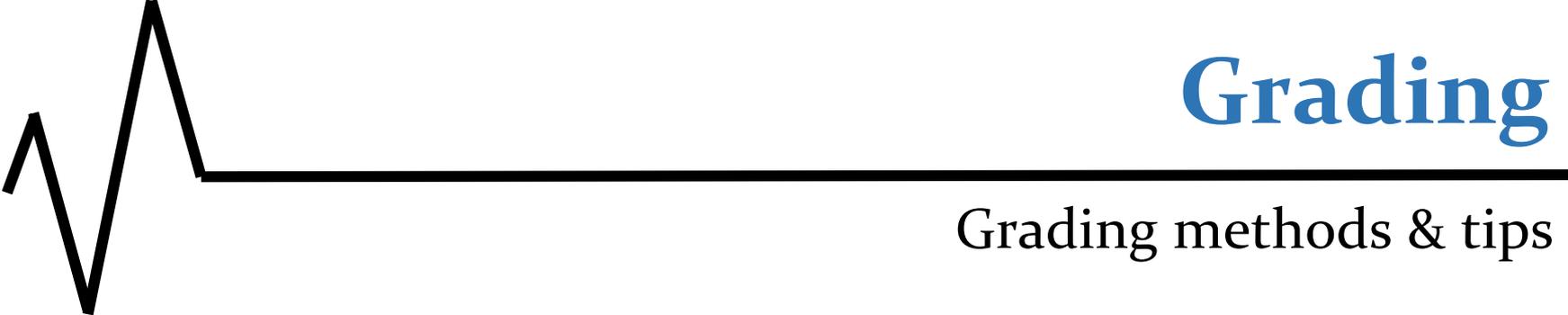


# Grading

## Grading methods & tips

### Methods

1. Grade all of the first questions first
2. Grade each paper starting from the last question

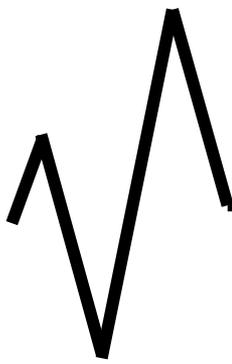


# Grading

## Grading methods & tips

### Methods

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3. Do the assignment yourself and use that as a guide
4. Use a student's work as an answer key



# Grading

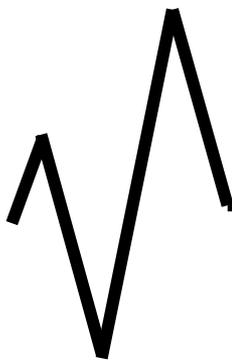
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### Methods

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### Tips

1. Grade in the morning
2. Grade with music (not Netflix!)



# Grading

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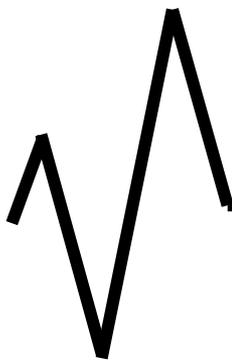
## Grading methods & tips

### Methods

1. Grade all of the first questions first
2. Grade each paper starting from the last question
3. Do the assignment yourself and use that as a guide
4. Use a student's work as an answer key

### Tips

1. Grade in the morning
2. Grade with music (not Netflix!)
3. Don't look at the student's name/ID number
4. Don't grade when you're hungry



# Grading

Grading practice

**5 minutes**

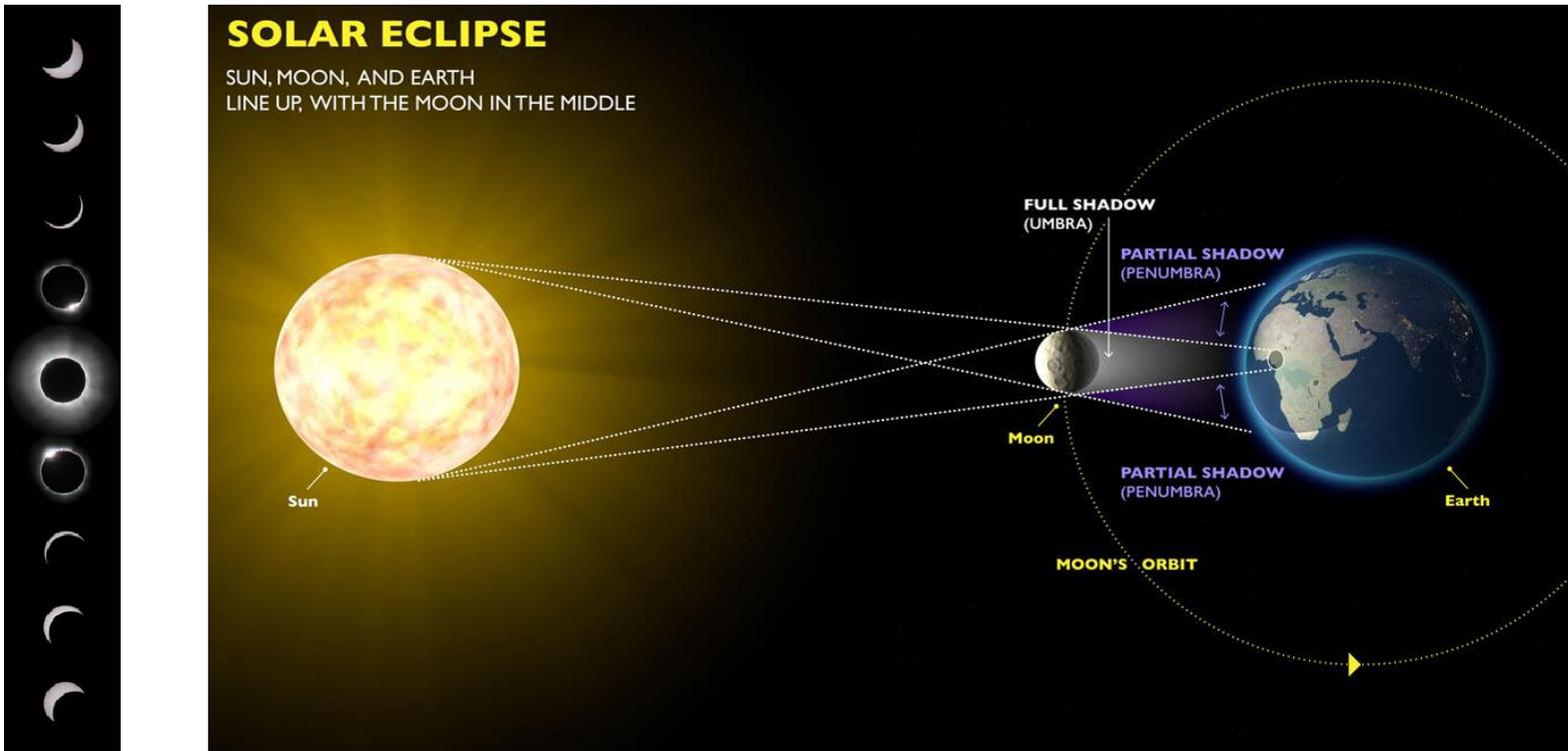
Individually, read the short answer response and grade the response out of 10.

**Share grades with your table.**

# Grading

10 marks

Explain how a solar eclipse occurs and its impact on the world. You may use a diagram.



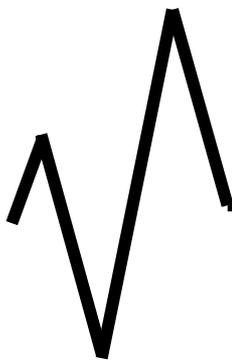


# Grading

10 marks

**Explain how a solar eclipse occurs and its impact on the world. You may use a diagram.**

A solar eclipse is when the sun and moon interact and the amount of light received by the earth is reduced. The moon blocks some or all of the sun's light onto Earth. When a solar eclipse occurs it is dangerous to look directly at the sun even though there is less light being emitted. A solar eclipse is not a common occurrence, but one could be seen in North America in August.



# Grading

Grading practice

**5 minutes**

Individually, read the second short answer response and grade the response out of 10.

**Share grades with your table.**

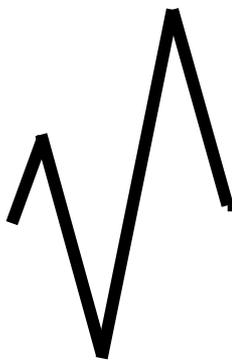


# Grading

10 marks

**Explain how a solar eclipse occurs and its impact on the world. You may use a diagram.**

A solar eclipse is a phenomenon that occurs when the moon orbits between the sun and earth. Not all of the earth will experience a solar eclipse at the same time. During this time, the moon can partially or fully block the sun and the amount of light reaching the Earth is reduced. The day gets darker, and thankfully it only lasts up to 3 hours so plants and animals are not severely affected. In comparison, a lunar eclipse is when the moon passes behind earth.

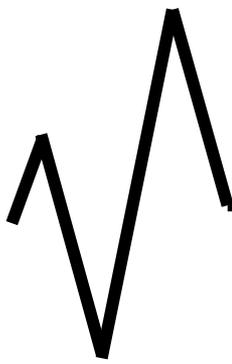


# Grading

Grading practice

8 minutes

**After reading the second student's work, would you change the grade of the first response ? Why or why not?**

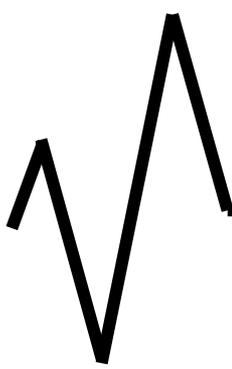


# Grading

Piloting the rubric

A rubric is:

- “A guide listing specific criteria for grading or scoring academic papers, projects, or tests”  
(Merriam Webster, 2017)



# Grading

Piloting the rubric

A rubric is:

- “A guide listing specific criteria for grading or scoring academic papers, projects, or tests”  
(Merriam Webster, 2017)

Rubrics are helpful because they:

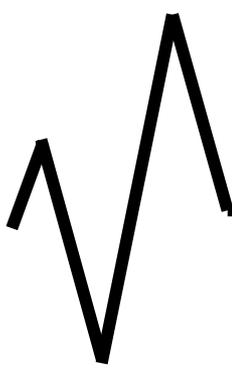
1. Organize the way marks are distributed
2. Promote fair grading
3. Are instructions for students and TAs

# Grading

## Rubric examples

Category	Exceeds Standard	Meets Standard	Nearly Meets Standard	Does Not Meet Standard	No Evidence	Score
<b>Title Page</b>	Title Your Name, Teacher's Name, Course Period, Date, Neatly finished-no errors	Evidence of four	Evidence of 3	Evidence of 2 or less	Absent	
<b>Thesis Statement</b>	Clearly and concisely states the paper's purpose in a single sentence, which is engaging, and thought provoking.	Clearly states the paper's purpose in a single sentence.	States the paper's purpose in a single sentence.	Incomplete and/or unfocused.	Absent, no evidence	
<b>Introduction</b>	The introduction is engaging, states the main topic and previews the structure of the paper.	The introduction states the main topic and previews the structure of the paper.	The introduction states the main topic but does not adequately preview the structure of the paper.	There is no clear introduction or main topic and the structure of the paper is missing.	Absent, no evidence	

Sub-criteria	Excellent (90-100%)	Good (70-90%)	Average (50-70)	Unacceptable (0-50%)
<b>2.5 Citation format</b> (2.5%)	All citations are formatted consistently with the style chosen and contain no errors.	Minor mistakes in the formatting of the citations. All elements included.	A few elements are missing or errors are present in more than one citation.	Many elements are missing and errors are present in the citations.



# Grading

## Rubric limitations

Rubrics are helpful, but always remember to ...

1. Check that your colleagues are using it the same way
2. Modify (maybe) the rubric after reviewing a few answers

Grades (%)		Grader 1	Grader 2	Grader 3
Citation format	Student 1	54	76	77
	Student 2	68	84	83



# Grading

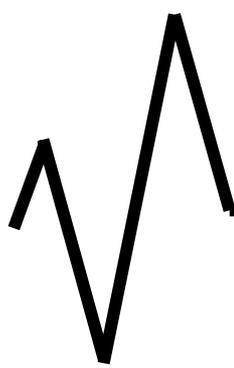
Rubric grading

**5 minutes**

**Use the rubric to regrade the two student responses.**

Interpret the rubric as you see fit.

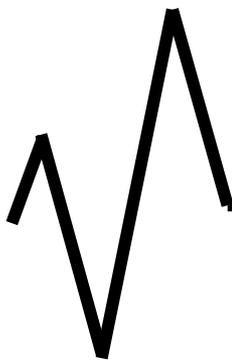
**What grade did you give them?**



# Grading

## Solar eclipse short answer rubric

Category (marks)	10 %	50 %	100%
Science explanation (6)	Did not answer the question	Response has some missing information.	Response is scientifically sound
Terms (2) e.g. eclipse, partial, total, orbit, corona	Did not use key terms correctly	Used some key terms correctly	Used the appropriate amount of key terms correctly
Provide examples e.g. partial and total solar and lunar eclipse (1)	Did not provide examples	Have mentioned one examples	Have provided more than one example
Impact(s) of solar eclipse on Earth/animals (1)	Did not provide any impact of solar eclipse	Provide one impact	Explained one or more impacts



# Grading

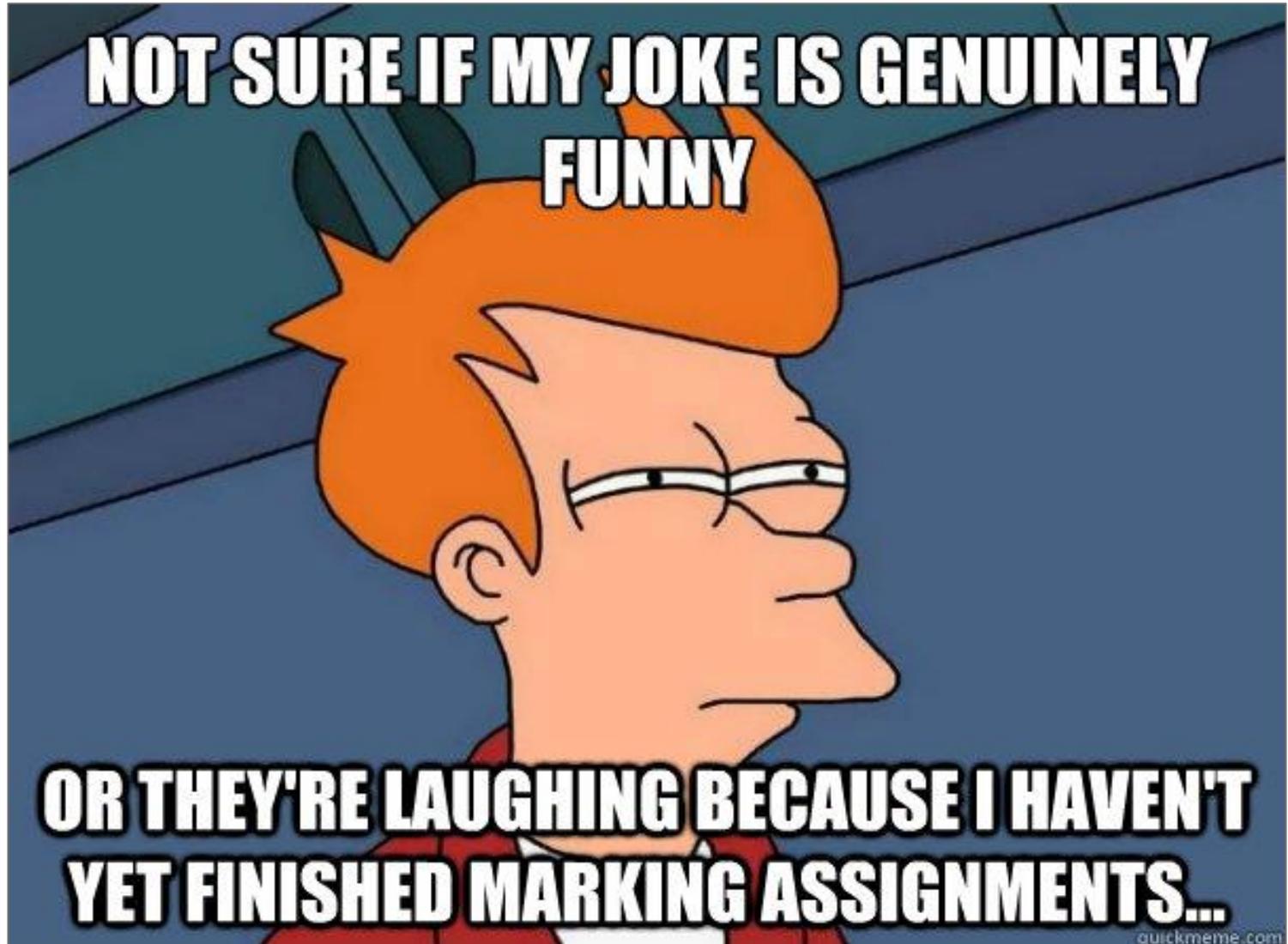
Rubric grading

5 minutes

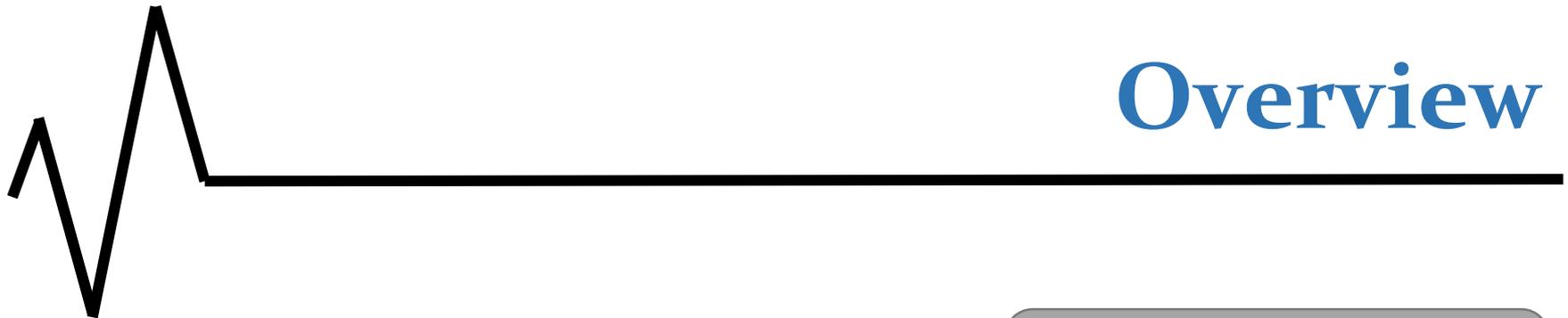
**Discuss with your group the rubric and your interpretation.**

- Where does your grade differ?
- Argue for your viewpoint!
- Where would you make changes?

# Grading



# Overview

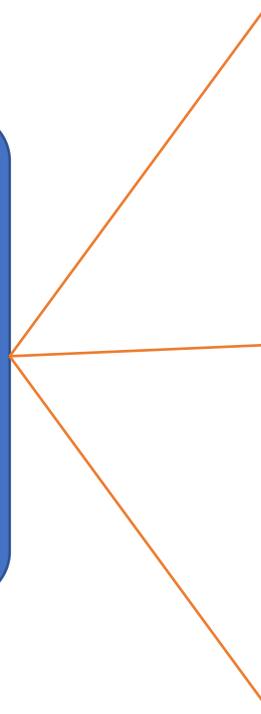


Assessment

Part 1  
Theory &  
Academic Integrity

Part 2  
Grading

Part 3  
Feedback

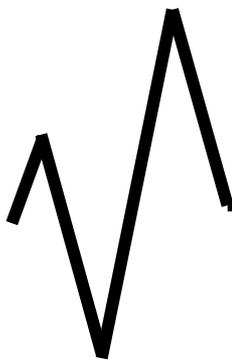


# Feedback

Workshop feedback so far



😊 Good job  
Most info is helpful



# Feedback

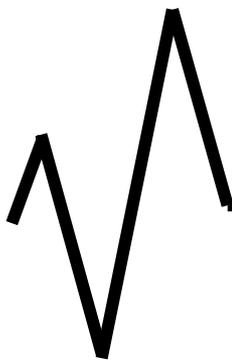
Workshop feedback so far

Is this feedback positive?

Yes- **Hands up!**

No-

😊 Good job  
Most info is helpful



# Feedback

Workshop feedback so far

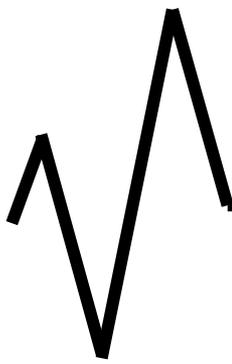
Is this feedback effective?

Yes- **Hands up!**

No-



☺ Good job  
Most info is helpful



# Feedback

Workshop feedback so far

Is this feedback constructive?

Yes- **Hands up!**

No-

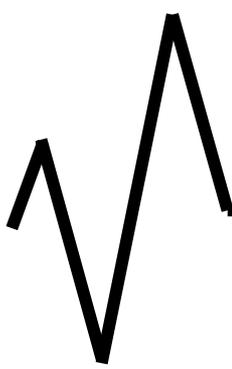
😊 Good job  
Most info is helpful

# Feedback

## Feedback Activity Summary

### Positive vs. Constructive vs. Effective

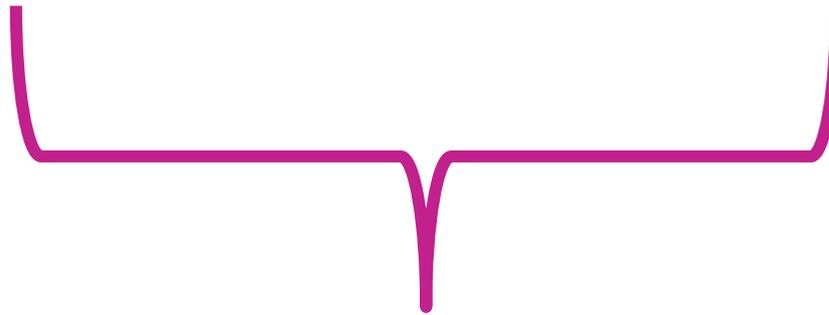




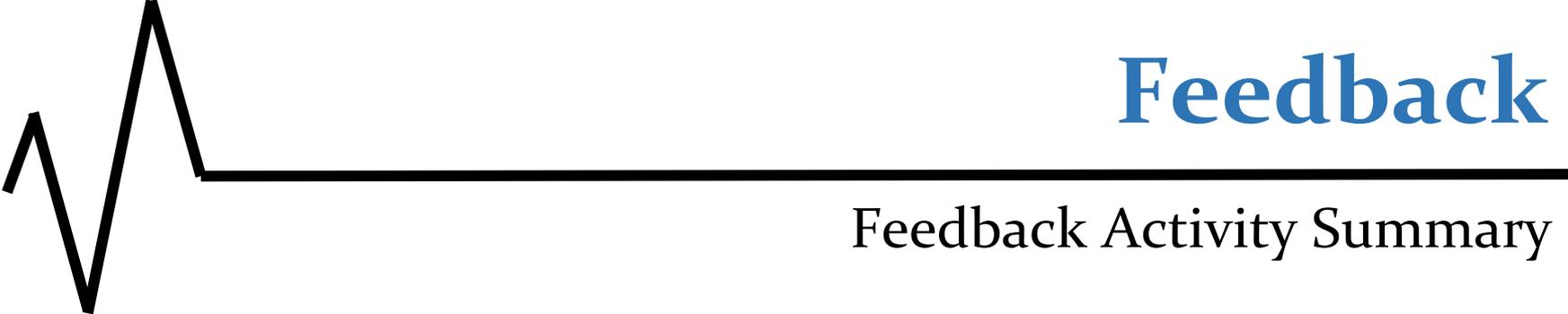
# Feedback

Feedback Activity Summary

**Positive vs. Constructive vs. Effective**



**Productive!**

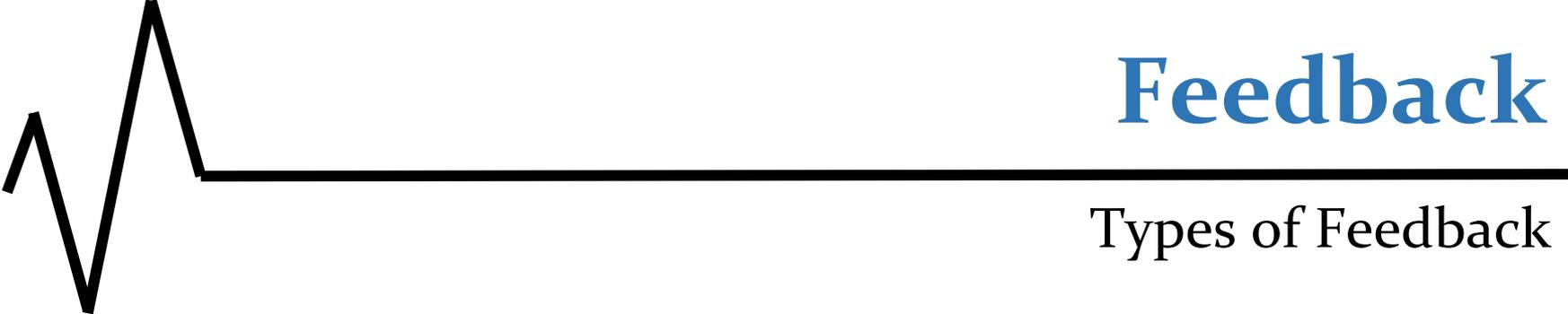


# Feedback

## Feedback Activity Summary

### When giving **productive** feedback:

1. You want to avoid empty praise: be specific
2. You can be **corrective**, **directive**, or **facilitative** with your feedback
3. You want to **motivate** us to improve



# Feedback

## Types of Feedback

Corrective:

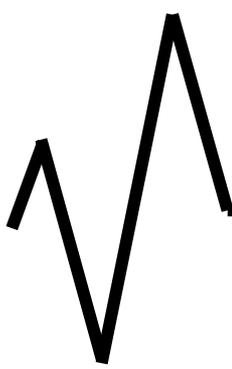
Tells the student  
what to do

Directive:

Tells the student  
how to fix a  
problem

Facilitative:

Guides the  
student to their  
own solution



# Feedback

## Types of Feedback

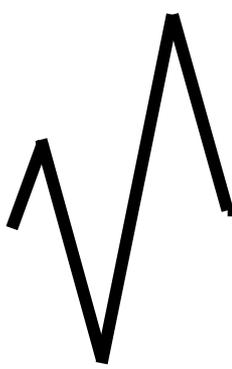
Corrective:

Directive:

Facilitative:

2. What is the molecular formula of glucose?

C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>



# Feedback

## Types of Feedback

Corrective:



Directive:

Tells the student  
how to fix a  
problem

Facilitative:

Guides the  
student to their  
own solution

2. What is the molecular formula of glucose?

C6HO\_\_\_\_\_.

# Feedback

## Types of Feedback

Corrective:



Directive:

The number of  
Cs and Os are  
equal. Hs fill  
the remaining  
bonds.

Facilitative:

Guides the  
student to their  
own solution

2. What is the molecular formula of glucose?

C6HO\_\_\_\_\_.

# Feedback

## Types of Feedback

Corrective:



Directive:

The number of  
Cs and Os are  
equal. Hs fill  
the remaining  
bonds.

Facilitative:

It's a 6C cyclic  
sugar. Try  
drawing it to  
help write the  
formula.

2. What is the molecular formula of glucose?

C6HO

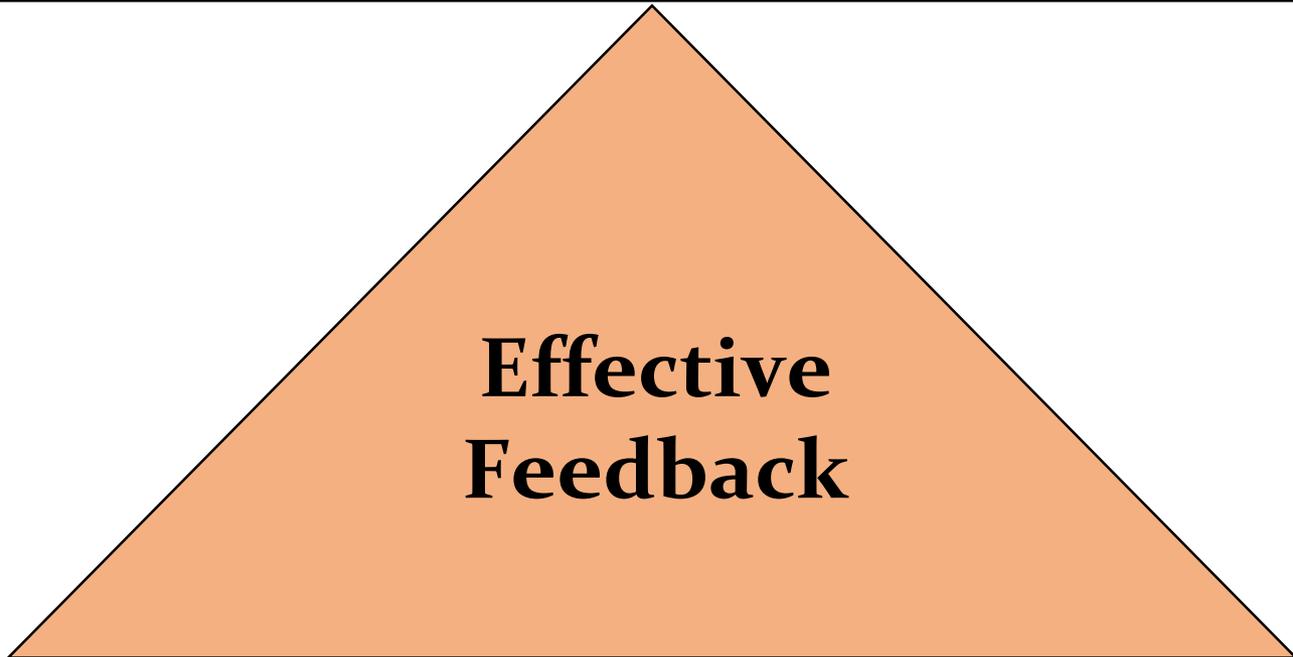
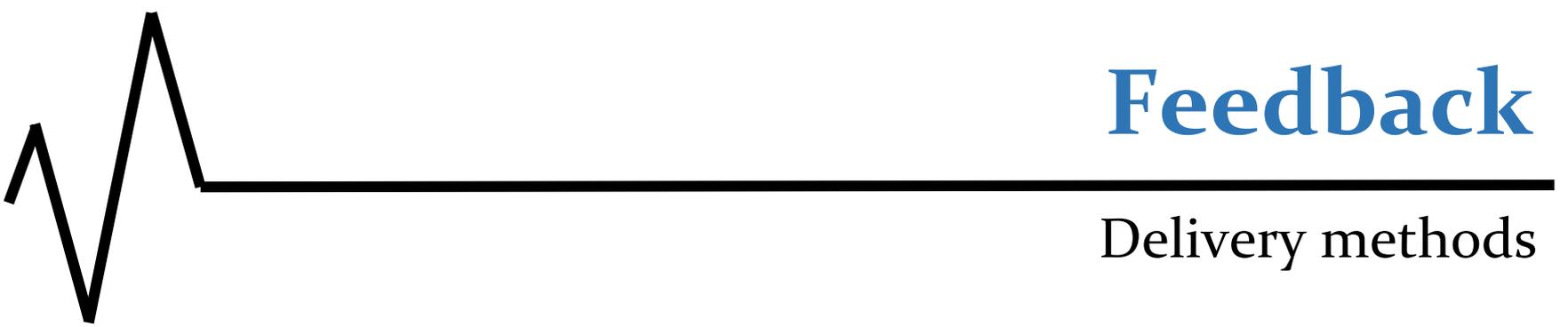
# Feedback

Delivery methods

Time

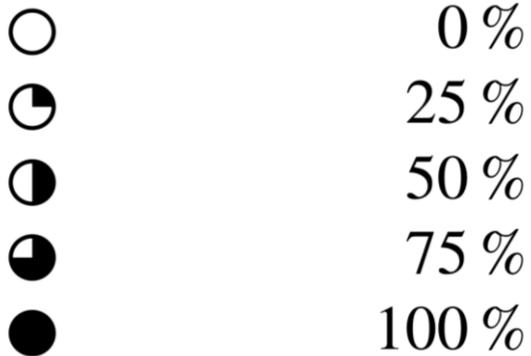
Quality

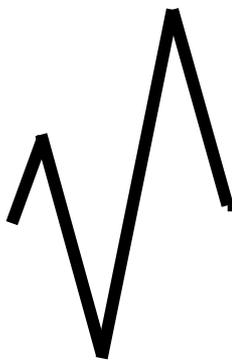
**Effective  
Feedback**



# Feedback

What to consider **before** I give feedback:





# Feedback

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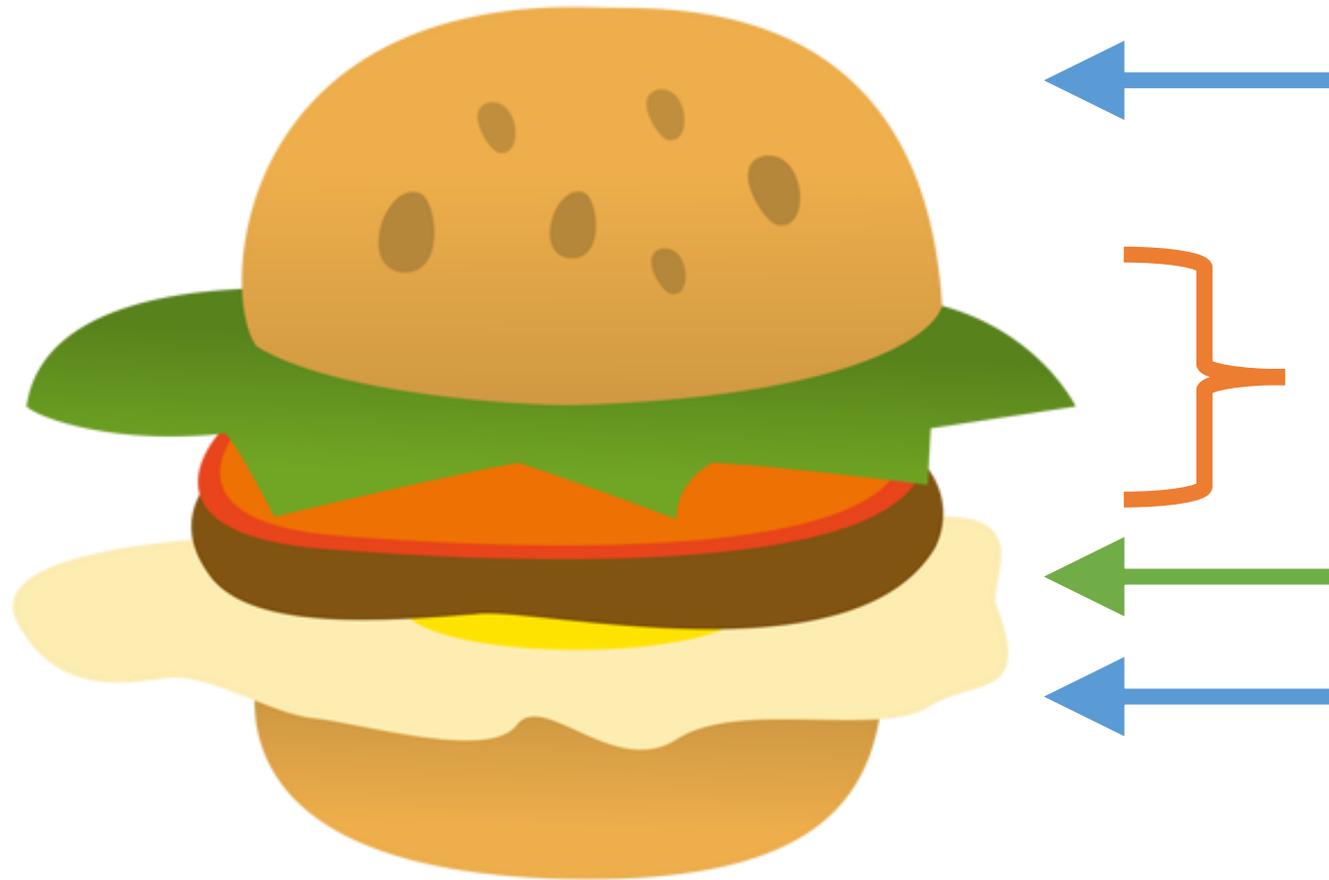
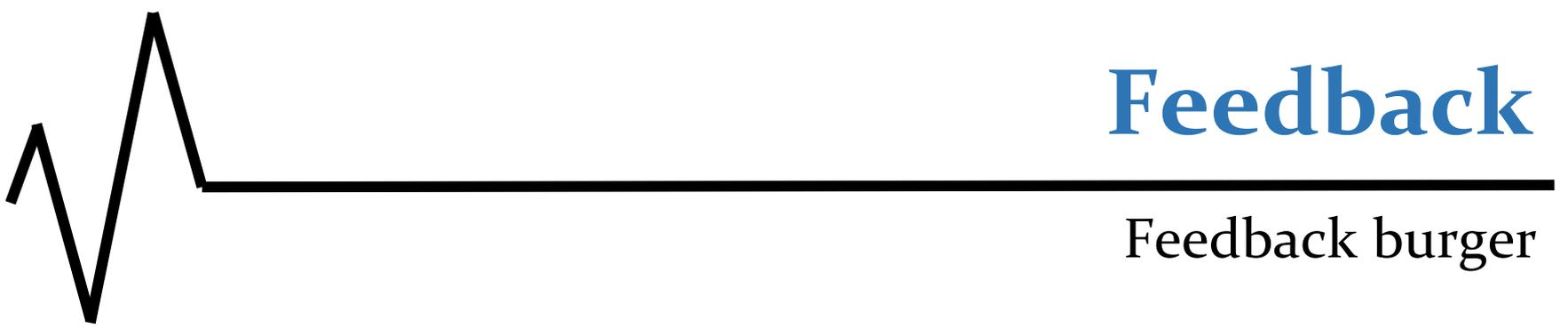
Feedback is a teaching tool

## Devote your time to...

- Develop 2-3 important skills
- Foster situations in which students can take some **concrete action** to improve before final evaluation
- Promote situations in which you can increase **motivation** or **confidence**

# Feedback

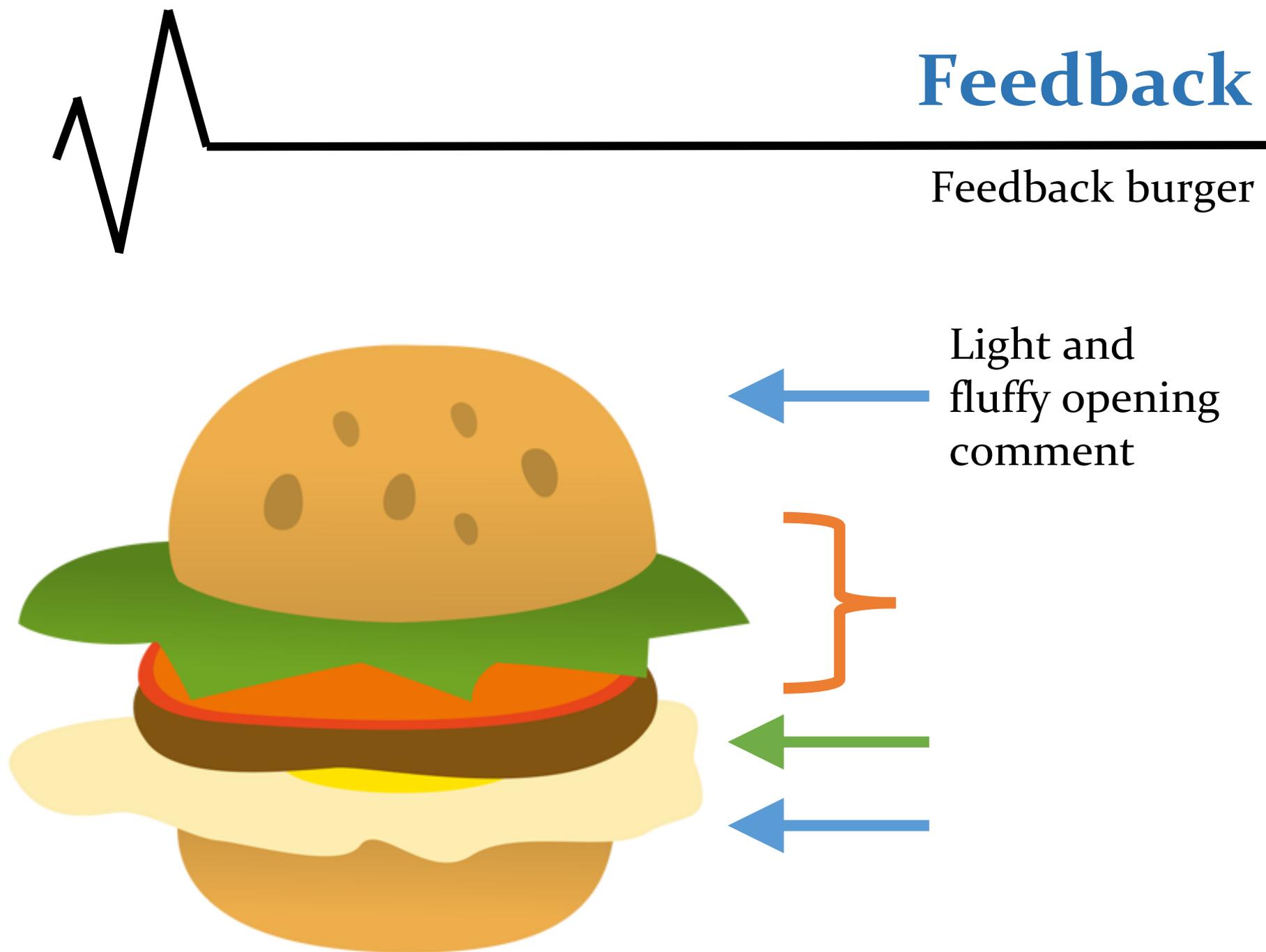
Feedback burger



# Feedback

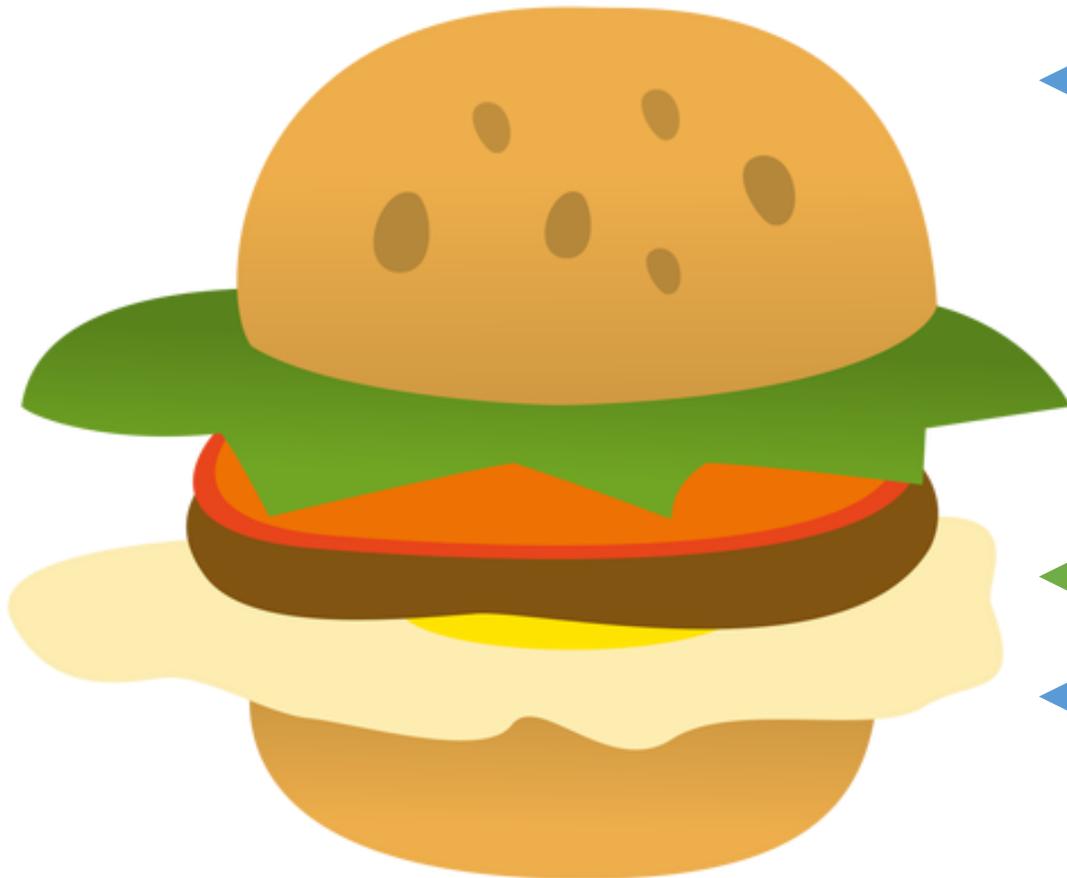
Feedback burger

Light and fluffy opening comment



# Feedback

Feedback burger



Light and fluffy opening comment

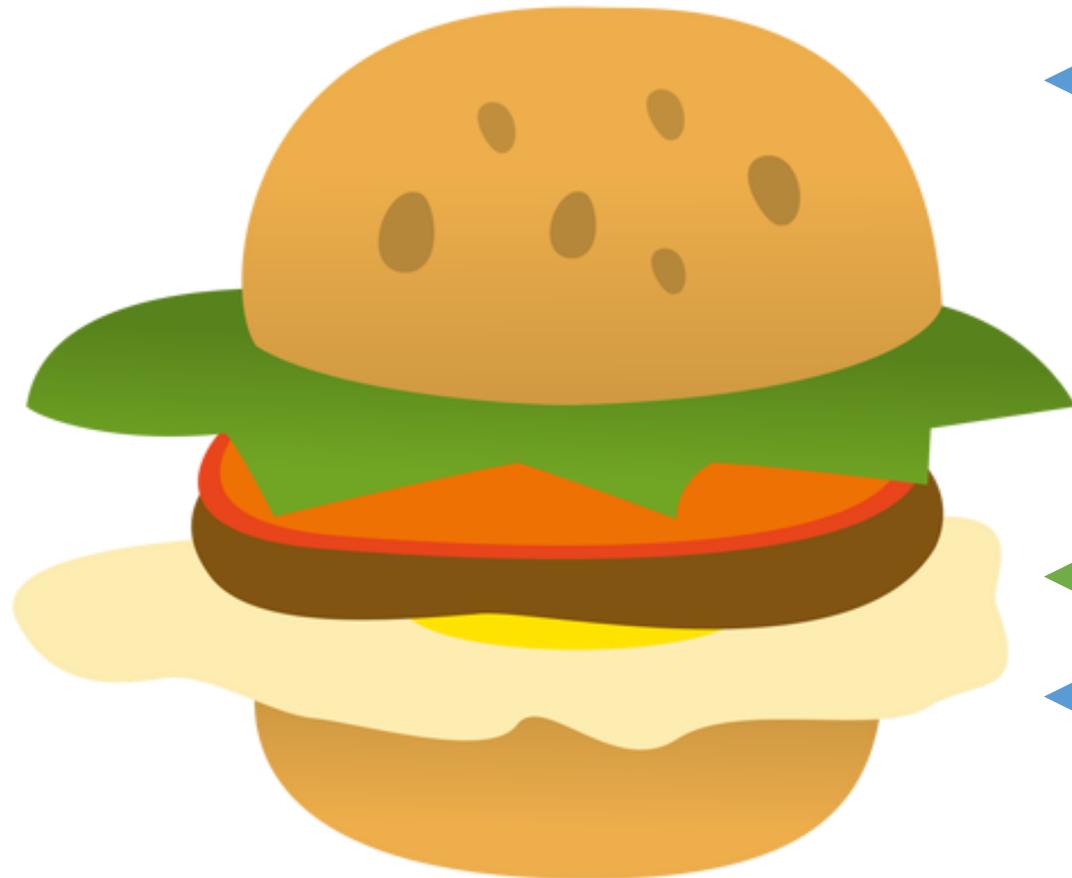


Some minor things to work on



# Feedback

Feedback burger



Light and fluffy opening comment



Some minor things to work on

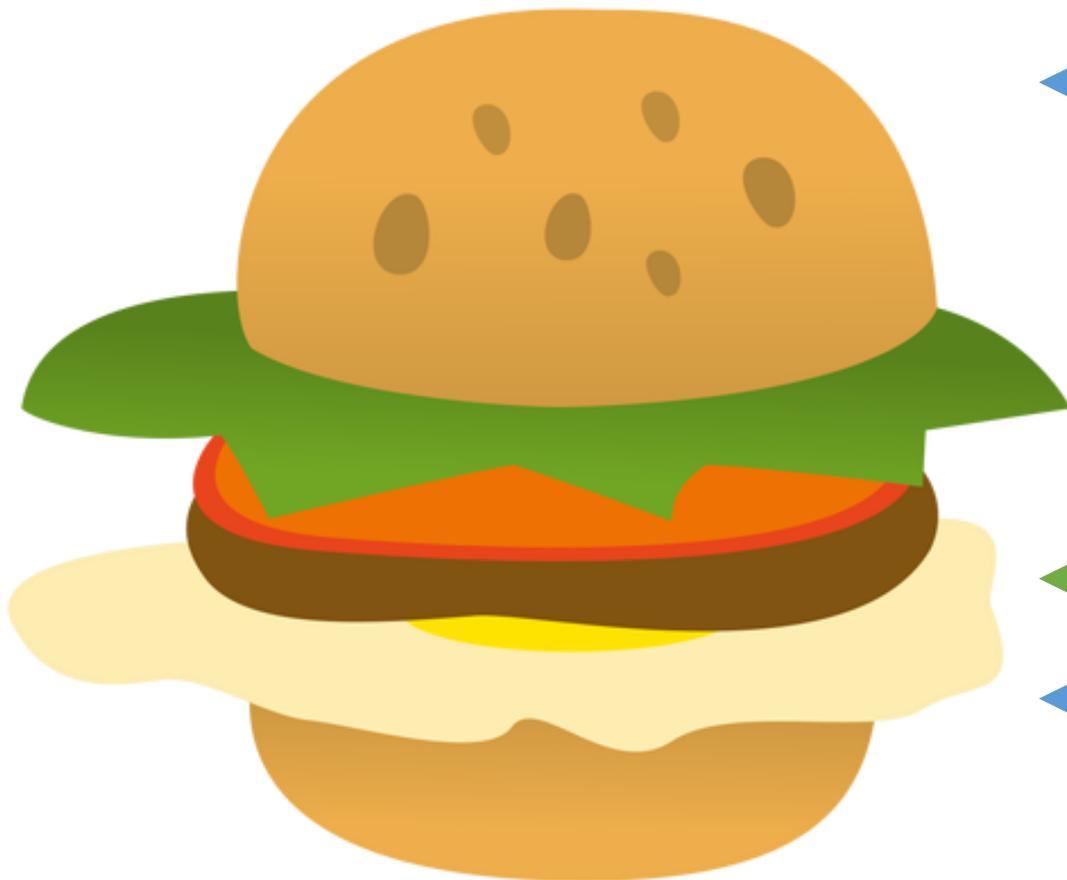


One major skill



# Feedback

Feedback burger

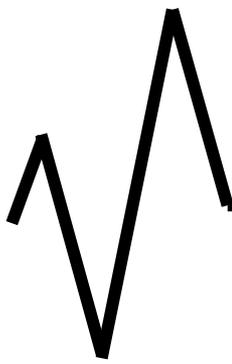


Light and fluffy opening comment

Some minor things to work on

One major skill

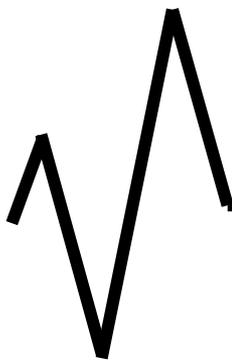
Light closing



# Feedback

## Feedback burger

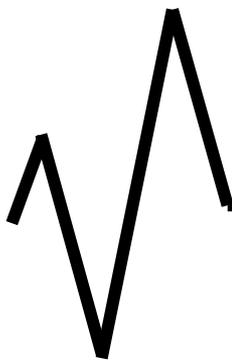
<b>Light and Fluffy start</b>	<b>Some minor things to work on</b>	<b>One major skill to work on</b>	<b>Light closing</b>
Excellent job on writing a thorough introduction	There are spelling mistakes	The methods section of the lab report are not clear as the processes are not scientifically sound or safe	Keep working hard



# Feedback

## Feedback burger

Light and Fluffy start	Some minor things to work on	One major skill to work on	Light closing
Excellent job on writing a thorough introduction	There are spelling mistakes	The methods section of the lab report are not clear as the processes are not scientifically sound or safe	Keep working hard
Good job on your presentation	There reference list is missing on the last slide	The presentation was over the time limit. Prior practice on the presentation can help to manage the time	Great use of figures

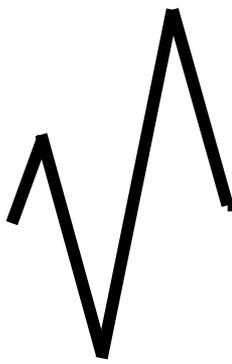


# Feedback

Feedback should **not** look like

## What is feedback?

Feedback is an approach used to provide information how to improve a specific learning process. Usually, feedback is used after an exam, presentation and assignment. The feedback should be clear and very ?????? detailed. Additionally, it should identify the ~~only~~ the strengths. Finally, feedback should be S.M.A.R.T.



# Feedback

Feedback should look like

## What is feedback?

Good introductory explanation. However, FB has to happen during all the learning process

Feedback is an approach used to provide information how to improve a specific learning process.

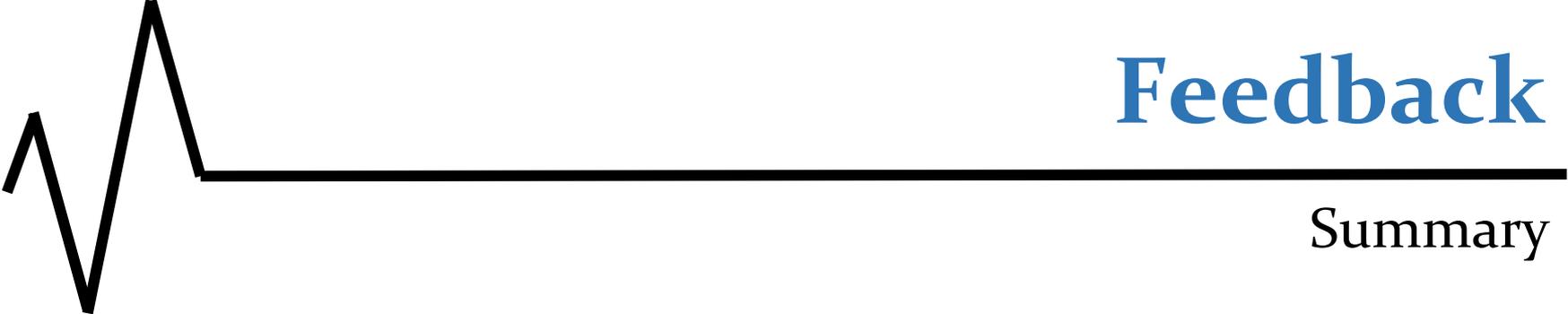
Just after?

Usually, feedback is used after an exam, presentation and assignment. The feedback should be clear and very

?????? Recheck whether FB should be detailed or not

detailed. Additionally, it should identify the ~~only~~ the strengths. Finally, feedback should be S.M.A.R.T.

What does S.M.A.R.T. stand for?



# Feedback

Summary

Productive feedback is **SMART**:

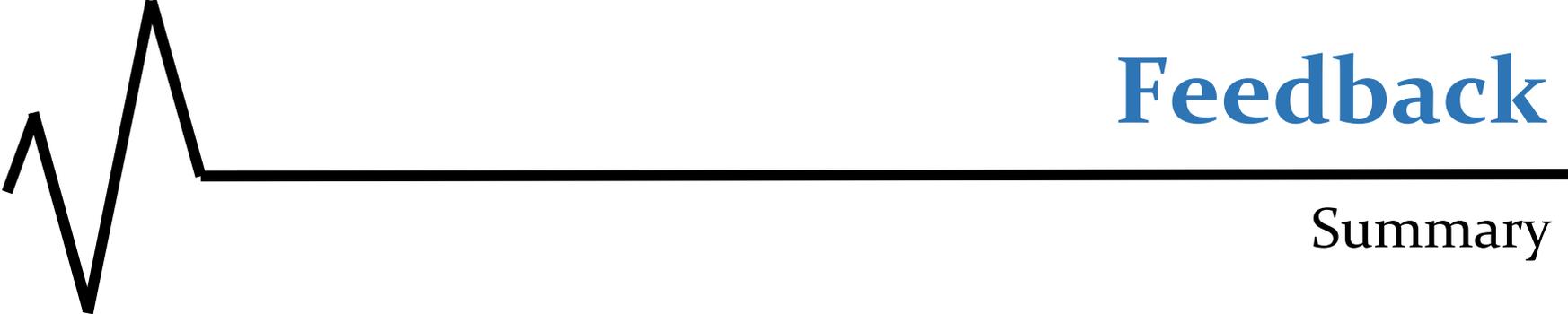
**S**

**M**

**A**

**R**

**T**



# Feedback

Summary

Productive feedback is **SMART**:

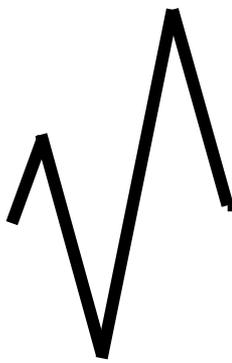
**Specific**

**Measurable**

**Actionable**

**Relevant**

**Timely**



# Feedback

Giving feedback

**3 minutes**

Provide feedback to one of the student responses.

**Think S.M.A.R.T.!**

# Feedback

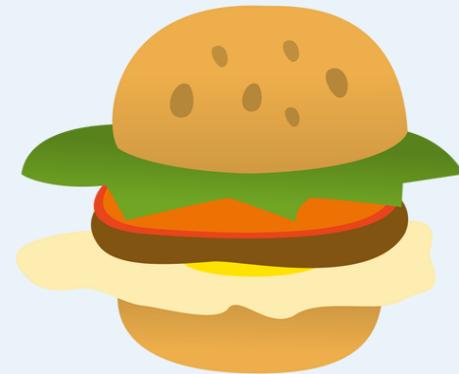
Feedback self-assessment

3 minutes

Review your feedback.

If your feedback was a food, would it be a

...

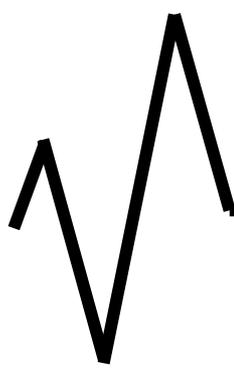


# Assessment

In the media



Source: [https://www.youtube.com/watch?v=0fn\\_vAhu\\_Lw](https://www.youtube.com/watch?v=0fn_vAhu_Lw)



# Assessment





# Assessment Summary

1. **Prevent** plagiarism by talking about it often with students and showing them how to properly reference resources.



# Assessment Summary

1. **Prevent** plagiarism by talking about it often with students and showing them how to properly reference resources.
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3. **Set** clear criteria and standards for your grading.



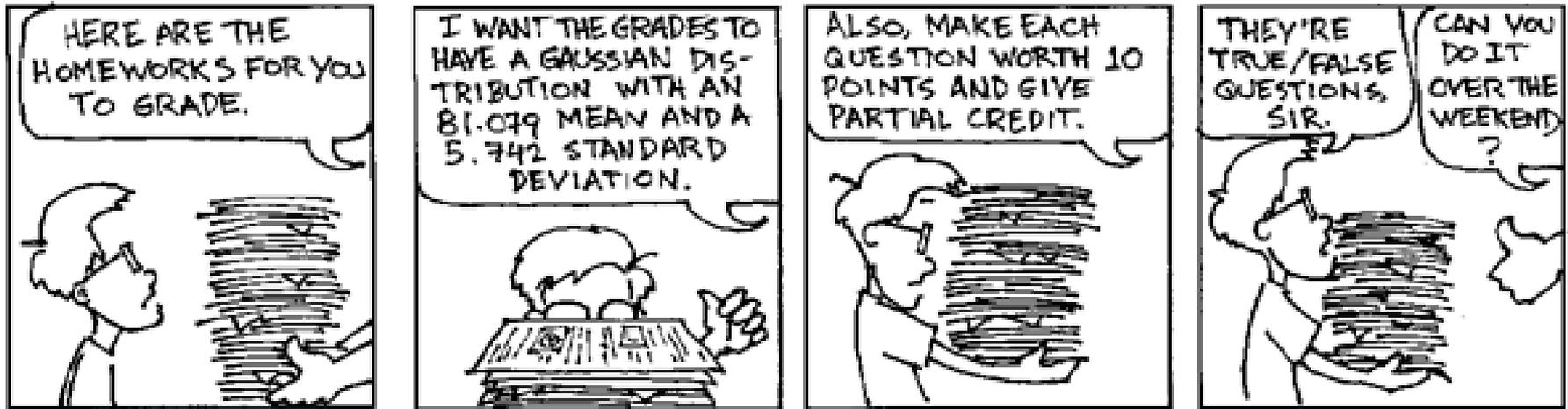
# Assessment Summary

1. **Prevent** plagiarism by talking about it often with students and showing them how to properly reference resources.
2. **Plan** a feedback and grading strategy that best uses your time and effort before you start working.
3. **Set** clear criteria and standards for your grading.
4. **Use** grading rubrics as a starting point for consistency across time and across many graders.
5. **Provide** feedback to students regularly & ask them for feedback too!

# Assessment

**Questions?**  
**Comments?**  
**Feedback 😊**

# Assessment



# Assessment



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