

# muse®

### What Mistake?

We often hear of people's great achievements, but what about their failures and the role they played in those achievements? This issue of MUSE explores the possibility for personal and social growth when presented with unfavorable outcomes. The old adage is true . . . we CAN learn from our mistakes!

### CONVERSATION QUESTION

How do our mistakes and flaws provide us with an opportunity to learn?

### TEACHING OBJECTIVES

- Students will learn how specific factors affect the success of a learning environment
- Students will learn why replicated scientific studies can produce faulty results
- Students will learn about tech genius Steve Jobs
- Students will compare and contrast the implementation of Project STAR in different schools
- Students will identify evidence that leads to explanations
- Students will analyze the cause-and-effect relationships between actions and outcomes
- Students will write a narrative
- Students will conduct interviews to obtain information and increase the scope of their awareness
- Students will write a personal essay connecting their experience to the theme of the article



## WAHT MISTEAK?

The unexpected upsides of failure

In addition to supplemental materials focused on core STEM skills, this flexible teaching tool offers vocabulary-building activities, questions for discussion, and cross-curricular activities.

### SELECTIONS

- **When Good Science Goes Bad**  
Expository Nonfiction, ~950L
- **Can You Repeat That?**  
Expository Nonfiction, ~950L
- **Flawed Genius**  
Expository Nonfiction, ~750L

## When Good Science Goes Bad

pp. 10–14, Expository Nonfiction

Creating the optimal learning environment is the subject of this article, which allows students to explore the effects of different variables on educational outcomes. It will be revealed to students that what is successful in one context may be unsuccessful in another.



### RESOURCES

- “What Went Wrong?”

### OBJECTIVES

- Students will learn how specific factors affect the success of a learning environment
- Students will compare and contrast the implementation of Project STAR in different schools
- Students will write a narrative

### KEY VOCABULARY

- **control** (p. 11) the group in an experiment that does not receive treatment
- **impact** (p. 12) influence, effect
- **randomized** (p. 11) unpredictable, unsystematic sampling
- **recruited** (p. 12) to have purposefully sought an individual

### ENGAGE

**Conversation Question:** How do our mistakes and flaws provide us with an opportunity to learn?

Invite the students to talk in small groups to determine what elements they believe create a successful learning experience. Have the students share their findings and generate a class list of criteria.

### INTRODUCE VOCABULARY

Display the key vocabulary terms. Discuss the general meanings of the terms. Advise the students that in this article the words are used in a scientific context. Lead the class in acknowledging that the way we define words is often relative to the discipline in which it is used. Have the class write the appropriate definitions in their science notebook. Draw attention to these words within the passage.

### READ & DISCUSS

Lead a class discussion based on the following prompts.

- What was the objective of the Project STAR experiment?
- How does the study provide evidence that the success or failure of a project relies on many factors?
- Why do you think that the size of the study played a factor in the results?
- What precautions do you think other schools could take to ensure better results than occurred in California?

### CONCEPT/SKILL FOCUS: Compare and Contrast

**INSTRUCT:** Elicit from students that the main idea of the article was to recognize the failure that occurred from trying to simply replicate a scientific study without considering all the factors. Assign partners and have students work to complete the “*What Went Wrong?*” graphic organizer, comparing the variables that altered the outcome of the California program. Encourage the pairs to share their finished work, allowing them to amend their own charts if necessary.

**ASSESS:** Review the graphic organizer to determine if the students were accurately able to record and compare/contrast information from the text. Consider arranging peer remediation groups if needed.

### EXTEND

**Language Arts** Instruct the students to reflect on the factors that are conducive to academic success and those that may be impeding their growth. Then, ask them to write a short fictional narrative about a hypothetical student who experiences both success and failure in the same school day.

## Muse® Teacher Guide: July/August 2018

### What Went Wrong?

Compare and contrast the variables in the implementation of the STAR Program in Tennessee and California schools. Use the information presented in the article “When Good Science Goes Bad” to list specific criteria on the graphic organizer.

<b>Contributing Factors</b>	<b>Tennessee</b>	<b>California</b>
Class Size		
Classroom Space		
Teachers		
Materials		
Funds		
Other		

# Muse® Teacher Guide: July/August 2018

## Can You Repeat That?

### p. 15, Expository Nonfiction

Although imitation may be the sincerest form of flattery, it can result in flawed scientific studies. This article explores the factors that alter the outcome of seemingly identical experiments, and offers explanations and solutions to increase effectiveness.



## RESOURCES

- “Stop Copying Me!”

## OBJECTIVES

- Students will learn why replicated scientific studies can produce faulty results
- Students will identify evidence that leads to explanations
- Students will collaborate with others

## KEY VOCABULARY

- **bias** (p. 15) prejudice in favor of or against one thing, person, or group
- **effective** (p. 15) successful in producing a desired result
- **inconsistent** (p. 15) not compatible with something
- **replication** (p. 15) the action of copying something

## ENGAGE

**Conversation Question:** How do our mistakes and flaws provide us with an opportunity to learn?

Does it often seem that the rules on what is good for you and what is harmful are constantly changing? Brainstorm with the class to generate a list of subjects where opinion on whether it is good for you or harmful has changed. Discuss the difficulties that arise when conflicting theories are publicly announced.

## INTRODUCE VOCABULARY

Have the class locate the key vocabulary terms in the text. Ask the students to infer specific meanings for the words. Share and review ideas and produce an accurate definition for all to record. At the conclusion of the lesson, challenge students to summarize the article using these words.

## READ & DISCUSS

Pose the following questions to the students and facilitate meaningful discussion.

- According to this article, why does the advice of healthcare professionals often change over time?
- What are some of the solutions that scientists are working on in an effort to achieve more consistent results?
- What information would be helpful when gauging how accurate a particular study may be?

## CONCEPT/SKILL FOCUS: Identify Main Idea

**INSTRUCT:** Guide students to obtain important information from the article and introduce the graphic organizer as a way for the students to record their thoughts. Then, have them write a brief summary of the text to demonstrate their understanding of the main idea.

**ASSESS:** Collect the students’ work on the “*Stop Copying Me!*” graphic organizer. This will help you evaluate individual levels of understanding.

## EXTEND

**Language Arts** Have students work in groups to brainstorm at least three products that could be depicted as a success by one source while at the same time could be depicted as a failure by another source. Have them list at least one reason to support both ideas about each product. Then, invite students to share their work with the class.



## Flawed Genius

### pp. 26–29, Expository Nonfiction

This article will introduce students to the turbulent career and the personal life of controversial Apple co-founder, Steve Jobs. Students will discover that the traits that make someone successful can also have negative consequences.



## RESOURCES

- “There’s an App for That!”

## OBJECTIVES

- Students will learn about the tech genius Steve Jobs
- Students will analyze the cause-and-effect relationship between actions and outcomes
- Students will write a personal essay connecting their experience to the theme of the article

## KEY VOCABULARY

- **convoluted** (p. 28) complex and difficult to follow
- **opposition** (p. 29) resistance or dissent
- **potential** (p. 29) having the capacity to develop into something in the future
- **spanned** (p. 27) extended across

## ENGAGE

**Conversation Question:** How do our mistakes and flaws provide us with an opportunity to learn?

Can you imagine life without your Apple tech products? If you don’t like those images, you have Steven Jobs to thank for sharing his genius. Have students discuss what tech products they feel have benefited them individually, as well as have advanced society. Discuss both the positive and negative impact of constantly evolving technology.

## INTRODUCE VOCABULARY

List the key vocabulary terms on the board and have students use resources to define them accurately. Next, challenge the class to list synonyms and antonyms for each word. Have students share their ideas.

## READ & DISCUSS

Lead a class discussion based on the following prompts.

- What are some of the high-tech products that were designed by Steve Jobs?
- How could obsessing over details as Jobs did, be both a negative and a positive trait?
- What behaviors caused Steve Jobs to be fired from his own company?
- Explain how Steve Jobs’s stubbornness was a factor in his comeback.

## CONCEPT/SKILL FOCUS: Cause and Effect

**INSTRUCT:** Discuss with the class that cause-and-effect relationships can be both positive and negative. Introduce the graphic organizer (“*There’s an App for That!*”) and let the students know that they will be searching through the article for such relationships. Encourage them to look at the information from different perspectives.

**ASSESS:** Evaluate the students’ work on the graphic organizer.

## EXTEND

**Language Arts** Have the students reflect on a time in their life when their behavior had both a positive and a negative consequence. Instruct students to write an essay detailing their experience. In the last paragraph, ask the students to conclude whether the good outweighed the bad and why.

## There's an App for That!

Page #	Cause/Behavior	Effect/Result	Positive or Negative
27	Jobs introduces the iPhone	Revolutionized the tech world, highly praised	Positive