

1.5

Facilitator Slides

- ★ Goals for Session
- ☰ Agenda and Activities
- ⏮ Final Reflection



1.3 Session Goals

GOALS:

Share the work that you are doing on your own as you go through the course

Reflect on your learning

Practice some of the tools that you were introduced to in the course

Get to know others in your lab/class

STRUCTURE:

Will meet every _ weeks for _ hours

Large and small group discussions

Reflection, Better Science, and Lab Manual questions can be part of each session

Activities and Discussions

When Experiments Fail

Reflection

Communication

The interactions in this scene illustrate several lab leadership and power dynamics: Harold is not told directly by his adviser about his reassignment and is left to draw his own conclusions about what is happening and why. Meena is given no real options either to decline the project nor to decline being the one who informs Harold.

Discuss the following questions in your small groups (10-15 Minutes):

- What is the difference between experiencing a failure and being a failure?
- Think about Meena and Harold's responses to not being able to make the compound. Can you identify any good or promising strategies?
- Can you identify any strategies that could have been effective had they occurred in a different environment?

Ask one person to take notes for sharing with the larger group.

When Experiments Fail

Reflection

Communication

Share one or two key takeaways from your small group discussion with the whole group (5-10 Minutes).

Discuss as a large group:

- In an ideal lab, how would mistakes be handled such that lab members can learn and grow from the situation?

When Experiments Fail

The pursuit of science, like life more broadly, will contain moments of failure. If we are open and thoughtful, failure can teach us valuable lessons like what not to do, offer insight about how things relate/function, and provide clues about what could be attempted next.

The way you respond to failure, including the way you think about disappointment, the choices you make as you react, and the people and systems you use for support, make a difference in your well-being, self-esteem, professional productivity, and the way others see you.

When Experiments Fail

With your small group, discuss a situation in your career(s) where you experienced a failure. What were your thoughts and behaviors?

Write them down in a table, keeping them separate (10 Minutes):

| Thoughts | Behaviors |
|----------|-----------|
| | |

Better Science Discussion

Key to the topic of this episode are the issues of reproducibility and replication.

Discuss the following questions (10-15 Minutes):

- In an ideal lab, what should happen when someone cannot replicate a procedure in a lab notebook? What protocols should be in place?
- What is the cost of not having these protocols in place?
- What aspects of lab culture might hinder attempts at rigor and reproducibility?

Lab Manual Discussion Questions

Consider how at the center of this scene is the issue of handling failures to reproduce past results.

In small group Discuss the Following (10 Minutes):

- What information should be included in the lab manual about how to report and handle the inability to replicate a process or results?
- How will this improve communication within the lab?
Between other labs?