# Using Learning Outcomes in Understanding a Science and Math Foundation for Undergraduate Degrees and Diplomas

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# For This Session

- Background
- Thinking in abstract
- Moving to specifics
  - Examples
- Moving from Issues to
- Ideas – Where Do We Go From Here?

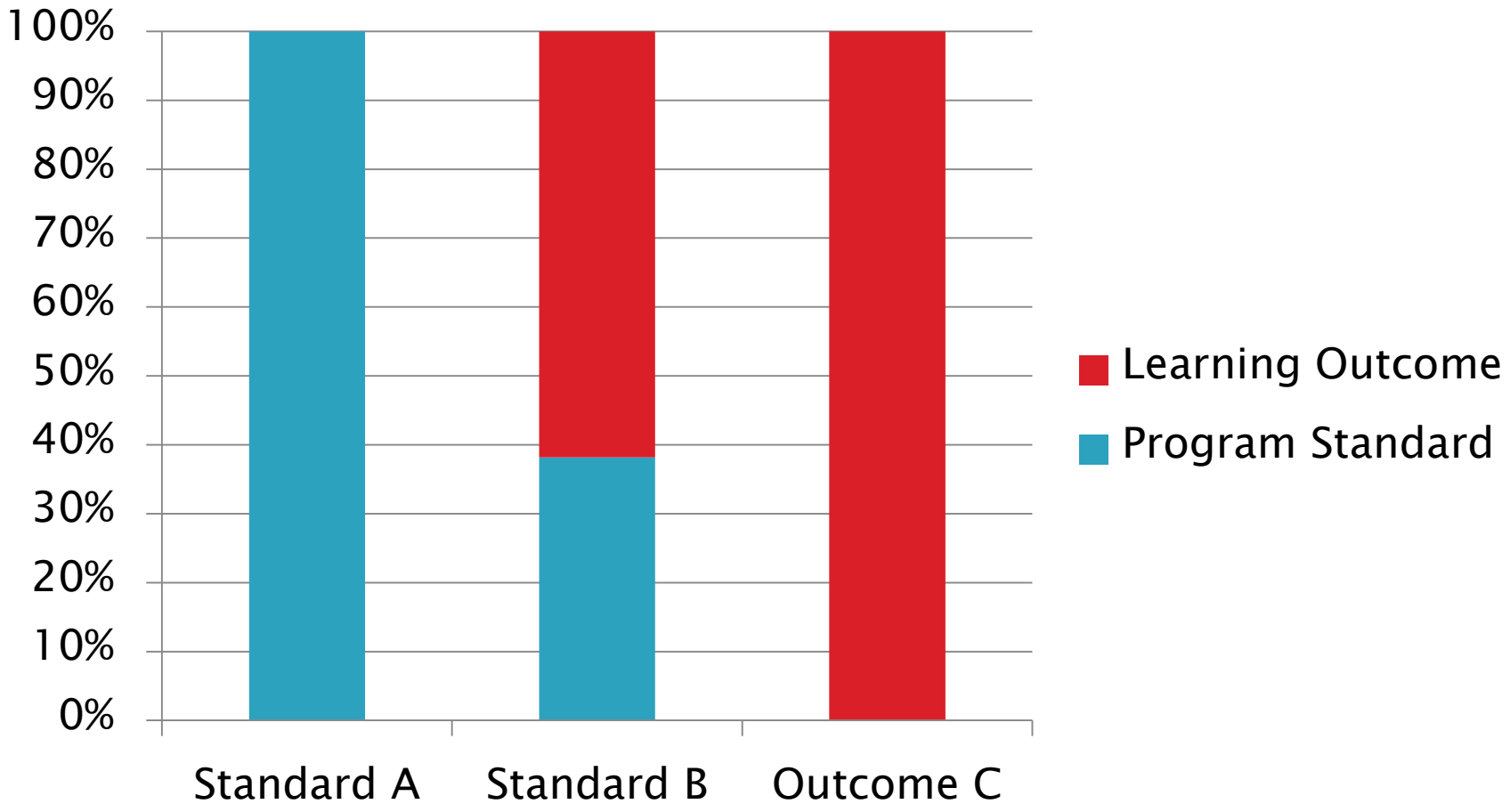
# Background

- Pathways projects (7, 6 science/technology)
  - Use Learning Outcomes and Diploma Program Standards to evaluate commonalities and differences between diploma and degree
  - Work through Gap Analyses
  - Map the Gap to curriculum
- Recognized that this is helpful to more than individual Pathways projects

# What Did We Learn By Our Experience

- We need to talk and work together
  - Understanding the language(s)
- STEM discipline perspectives
  - Need to speak in terms of specializations and content not just skills and general education
- Want to ready students for success and what that means (ie what do we need to do?)

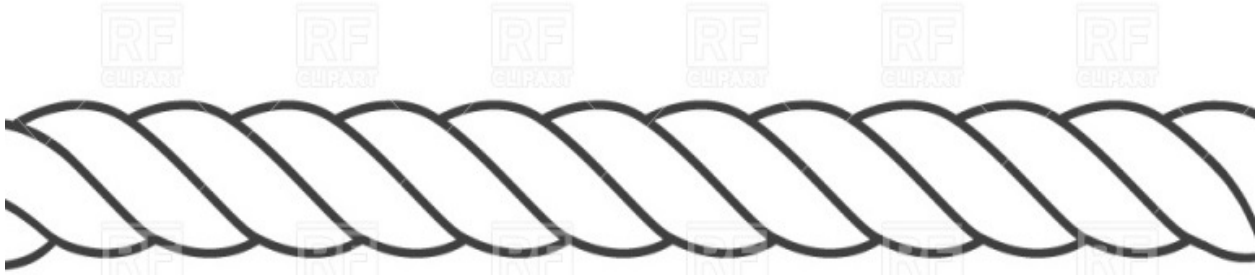
# Evaluate for Credit Using Learning Outcomes and Standards



# Mapping the "Gap" to Curriculum

Diploma Courses

Degree Courses



Untwining the Standard or Learning Outcome into Coursework

# Comparing the credential requirements

- Acknowledge General Education requirements vs
- Specialization – science/math

# Examples of Learning Outcome Statements

- Analyze water/soil/air samples in a manner that contributes to the resolution of environmental problems through the selection and application of relevant scientific and engineering principles

- Demonstrate an in-depth understanding of the scientific method, and of the central organizing paradigms, concepts, processes, and theories in biology, across the full spectrum of biological organization

- Demonstrate the skills required to plan and carry out investigations, using laboratory equipment safely, effectively, and accurately (e.g., conduct an experiment to determine the effects of quantity and quality of light on photosynthesis)

# Examples of Learning Outcome Statements

- Analyze and interpret data using statistical methods
- Apply scientific methods and processes by formulating questions, designing investigations and synthesizing data to draw conclusions and make scientifically-based decisions
- Communicate the procedures and results of investigations and research for specific purposes using data tables and laboratory reports

# Identifying the Issues

- Opportunities
- Obstacles

# Where Do We Go From Here?

- Collate the work we've done individually/within groups
- What has been done in other jurisdictions
- Interested in staying in touch?
- What do we want to do next?
  - Priorities?
  - Options?

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