Is your students’ prior knowledge

- Appropriate?
- Sufficient?
- Flawed?
Appropriate?
Is a student’s prior knowledge appropriate for the context?

- Everyday language versus technical language
- Failure to appreciate the limitations of analogies
- Transfer to – and limitations of transfer to interdisciplinary contexts
Sufficient?
Assess for Sufficient Prior Knowledge

Do students know the facts? Do students know the procedure?
What if prior knowledge is insufficient?

If only a few students lack sufficient prerequisite knowledge:
- Might advise taking a course leading to the necessary background
  OR
- Provide a list of terms and necessary skills to fill in gaps on their own time

If a larger number of students lack sufficient prerequisite knowledge:
- Devote one or two classes to review
- Ask TA to hold a review session outside of class time

If sizable number of students lack critical prerequisite knowledge:
- Consider revising course altogether
- Consider curricular review at department level
Flawed?
How to work with flawed ideas, beliefs, models, or theories

**Isolated ideas and beliefs**
- Systematic Refutation
- Reflective questioning during learning
- Make and test predictions

**Deeply-embedded misconceptions**
- Reason away from inaccurate knowledge
- Provide multiple opportunities for students to use accurate knowledge
- Allow sufficient time for cognitive processing
What we can do

- Consider course content proficiencies
- Use strategies to deliberately activate prior knowledge
- Foster students’ metacognitive development
- Design learning activities that help students to draw connections between material
- Check students’ preparedness for your course
- Provide multiple opportunities for students to reason through material
Resources


Prior Knowledge is More Than Content: Skills and Beliefs Also Impact Learning
Susan A. Ambrose and Marsha C. Lovett