Wed. 30 Aug.	Preface + Chapter 1.1: Understanding science (and learning)	7-19	MK	**Complete** beSocratic #1

Before we start, any questions, concerns or comments on how the course is designed and presented?

final word on exams:
I know it now exams™

http://virtuallaboratory.colorado.edu/Biofundamentals-coreBIO/

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comments from NB page 7 to 19

preface page 1-12: Tamar + Keegan

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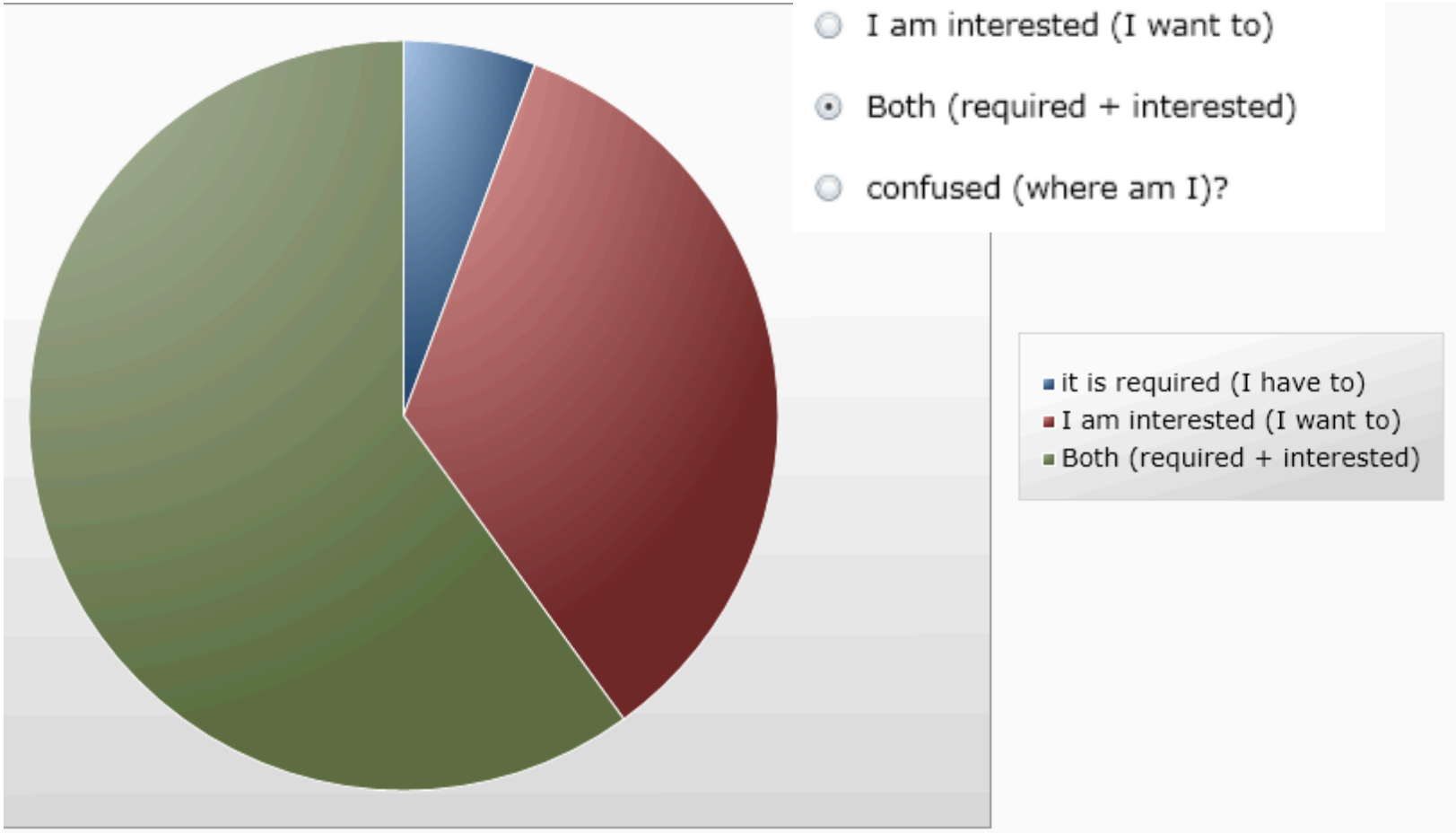
Why are you taking this course?
(pick single best response)

- it is required (I have to)
- I am interested (I want to)
- Both (required + interested)
- confused (where am I)?



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Given my background, I suspect that this course

- ○ will be too easy for me
- ◉ may be a challenge for me, but I expect to succeed
- ○ may be a waste of time

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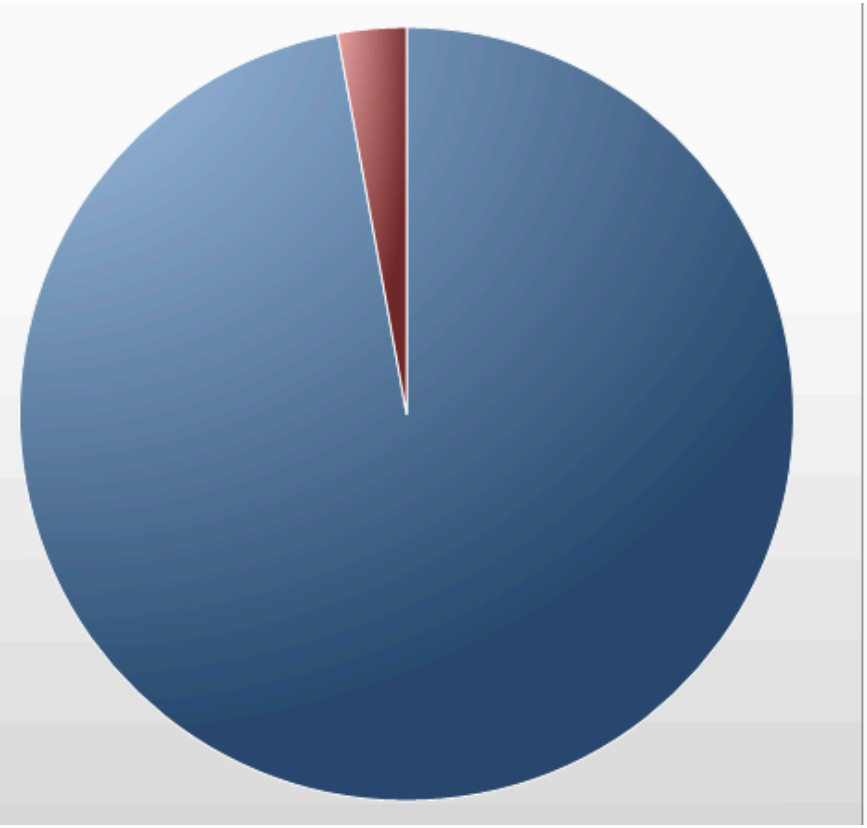

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Table discussion: What two to three scientific ideas do you find difficult to accept and why?

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We use a socratic approach to teaching and learning - when we ask questions of you, or you ask questions of yourself (or us), you need to state as clearly as you can what you are assuming to be true, and if you are confused, where that confusion is coming from.

Almost the entirety of physics, at the time I was learning I did not know calculus so that played a major role in that but conceptually I struggled as well and I think this was due to a lack of visual explanations.

I can't think of any super specific concepts right now but in the past I have had trouble explaining processes (especially when I have to explain it in a test or a lab write up). For example I might find it hard to explain a process of what exactly happens in a positive feedback loop or something like that.

If you have concerns about the course, please let let Prof. K and/or your LAs know about them – we will do our best to address them.

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It is helpful for us to discover somethings about how you think. This and the next exercise can help us. Please fill in the missing parts of the bicycle.

Draw Erase Reset

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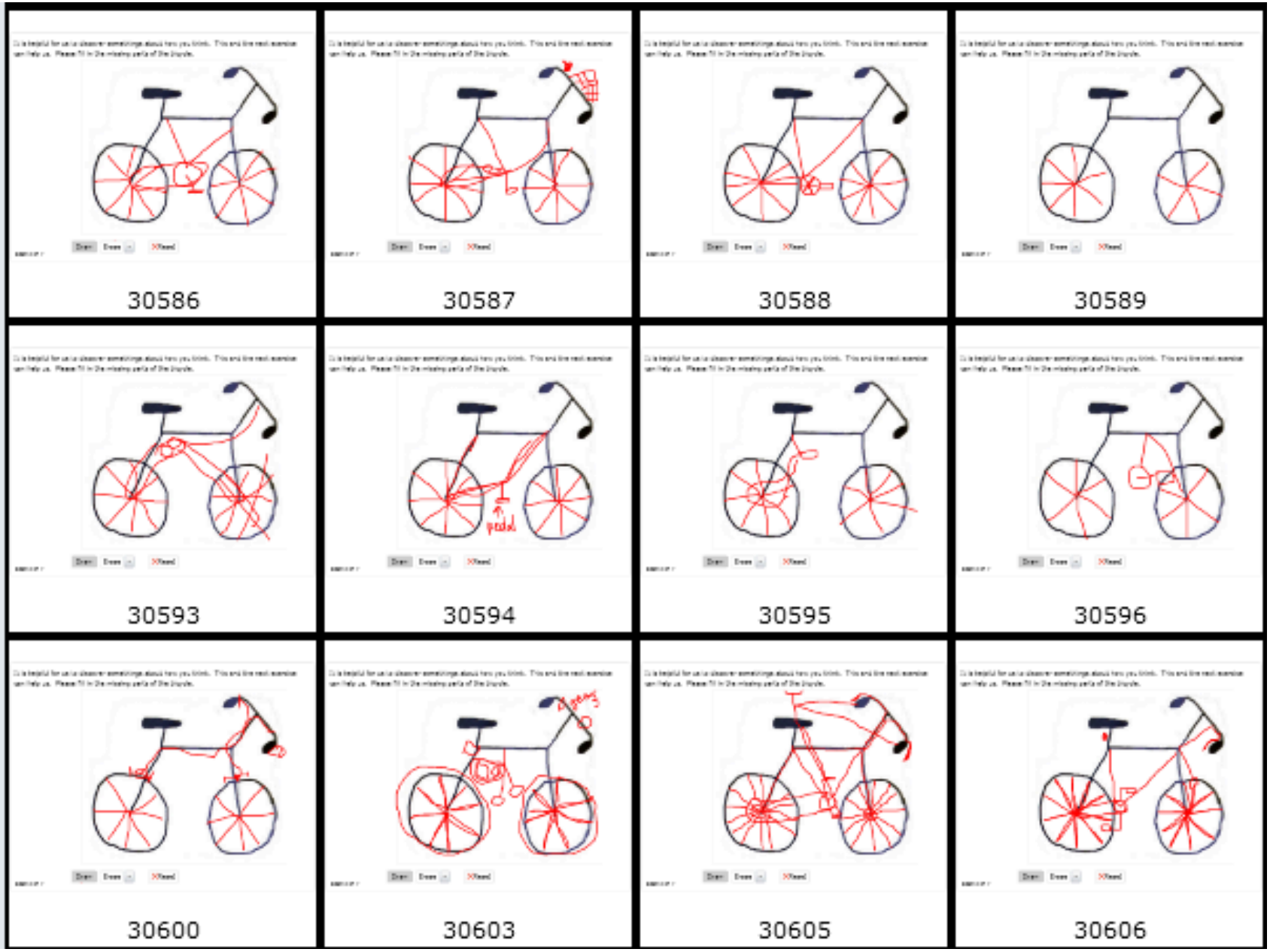
Wed. 30 Aug. Preface + Chapter 1.1: Understanding science (and learning) 7-19 MK **Complete** beSocratic #1

It is helpful for us to discover somethings about how you think. This and the next exercise can help us. Please fill in the missing parts of the bicycle.

Draw Erase Reset



Wed. 30 Aug. Preface + Chapter 1.1: Understanding science (and learning) 7-19 MK **Complete** beSocratic #1

The diagram shows a rock attached by a rope to a person (at the center) who is spinning it around their head. Draw how you think the the rock will move if the person lets go of the rope

What ideas did you use in your answer?

Draw | Erase | ✕Reset

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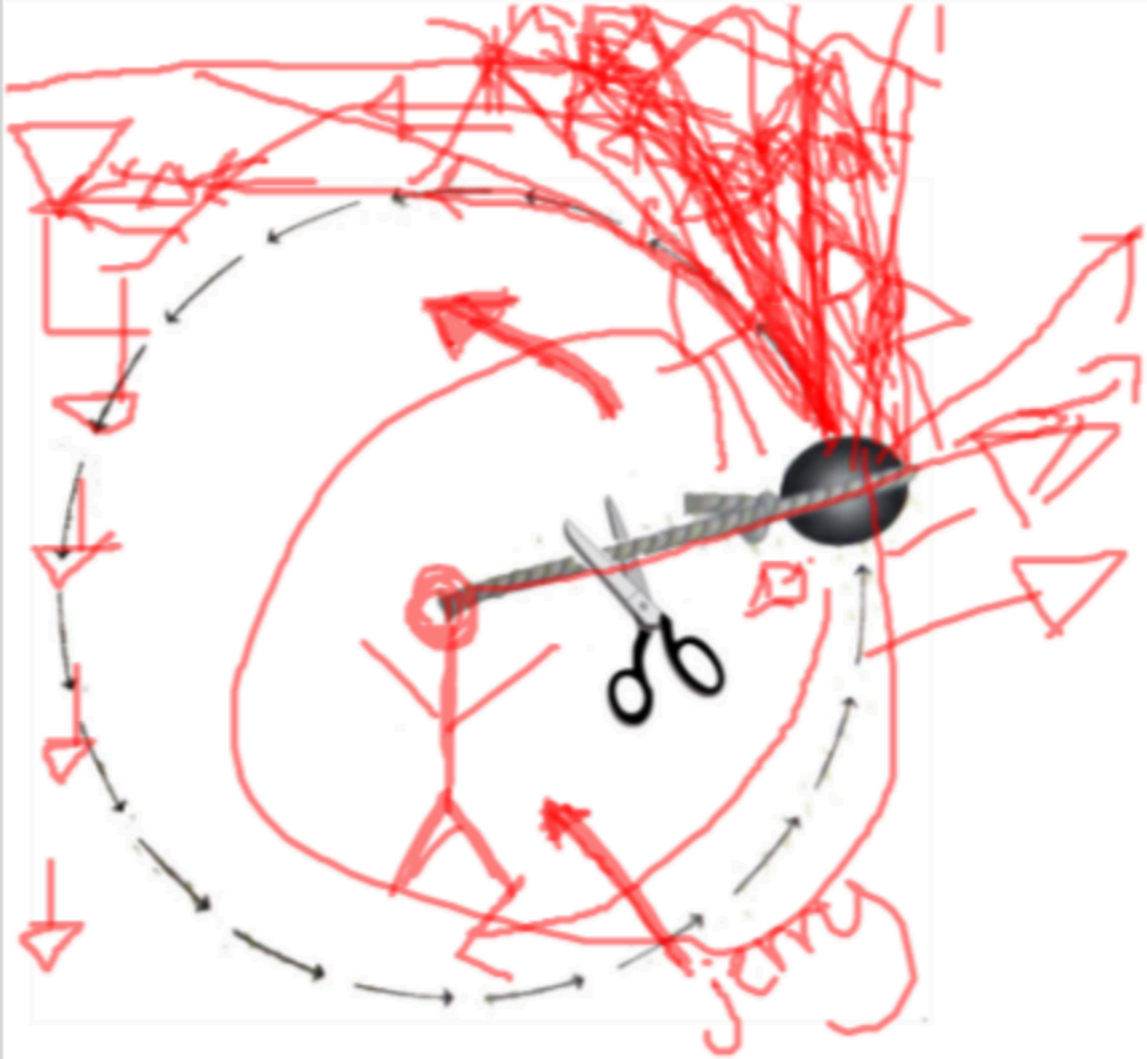
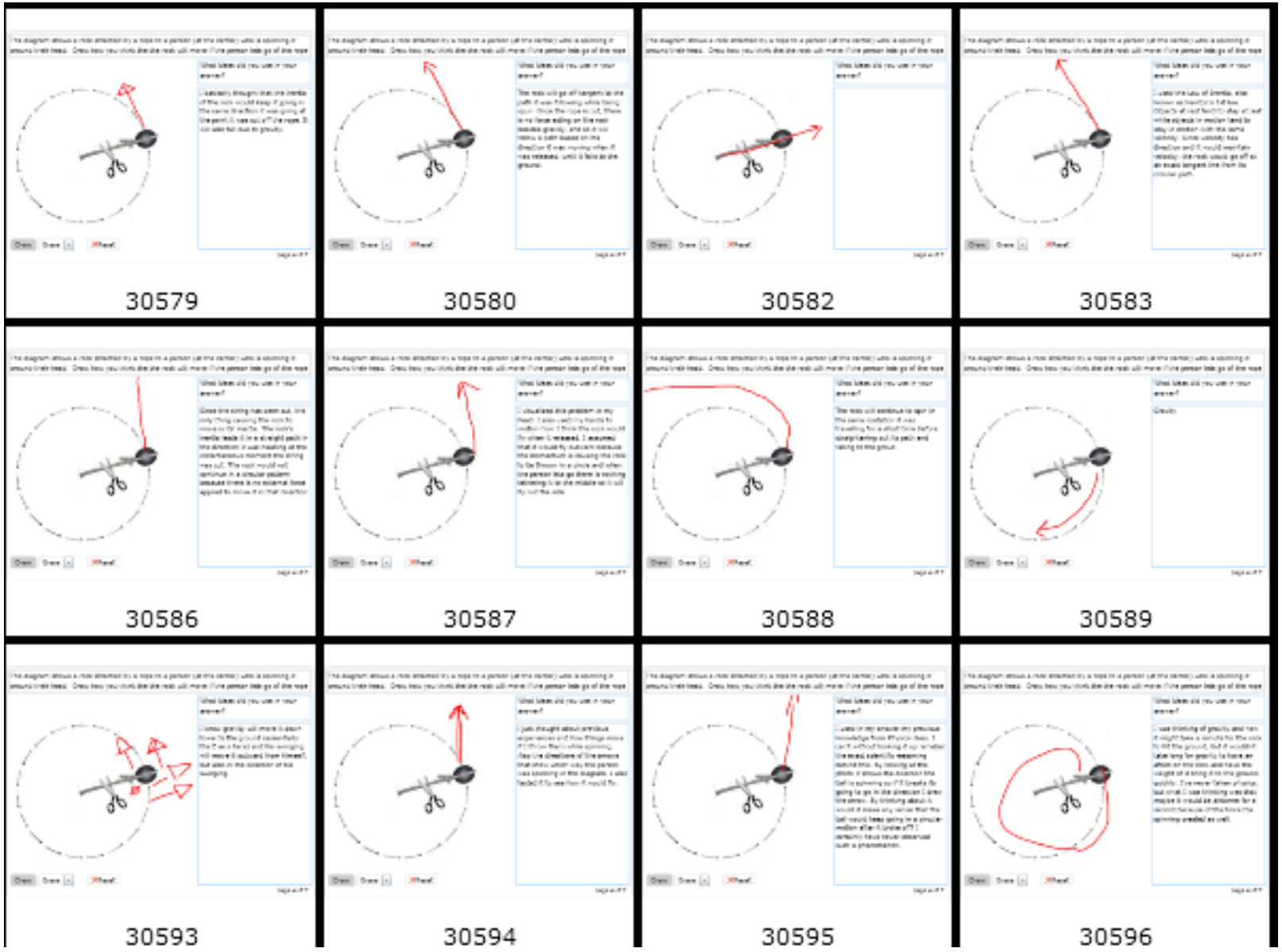
Wed. 30 Aug. Preface + Chapter 1.1: Understanding science (and learning) 7-19 MK **Complete** beSocratic #1

The diagram shows a rock attached by a rope to a person (at the center) who is spinning it around their head. Draw how you think the the rock will move if the person lets go of the rope



Draw | Erase | Reset

What ideas did you use in your answer?



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comments from NB
chapter 1, part 1 page 13-19
Keegan + Tamar

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How is biology different from physics and chemistry?

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In the text we describe how science can be likened to a cross-word puzzle.
Describe what this means and how does it constrain the
types of ideas that can be considered scientific?

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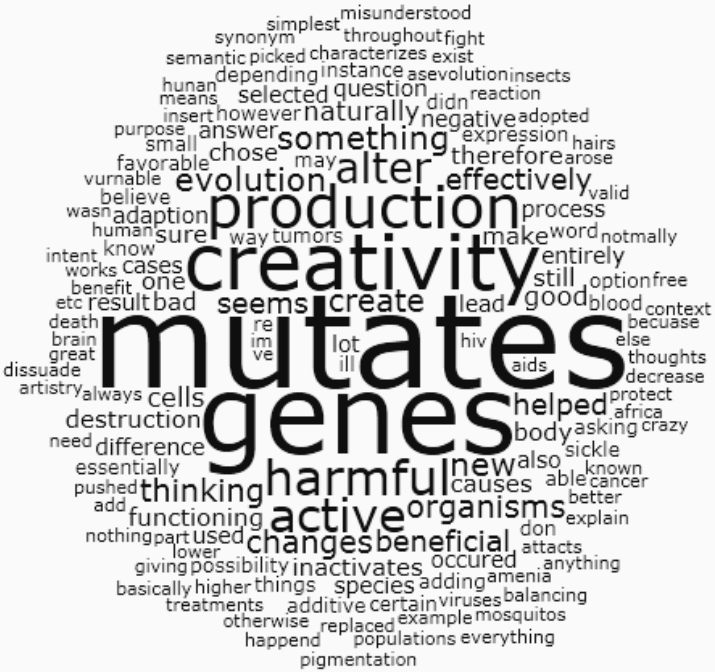
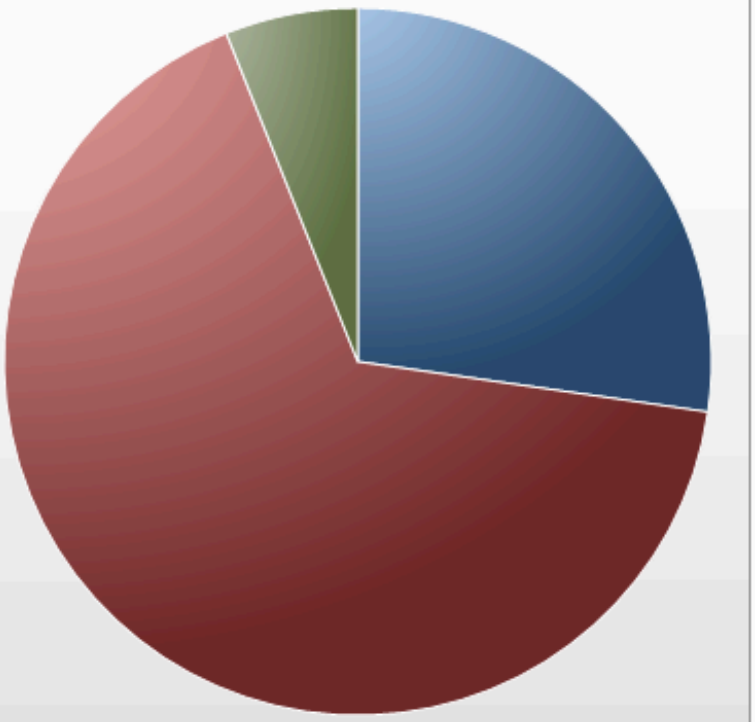
How might a mutation be creative?

explain your thinking

- A: It could not be; all naturally occuring mutations are destructive.
- B: If the mutation inactivated a gene that was harmful.
- C: If the mutation altered the gene product's activity.
- D: If the mutation had no effect on the activity of the gene product.



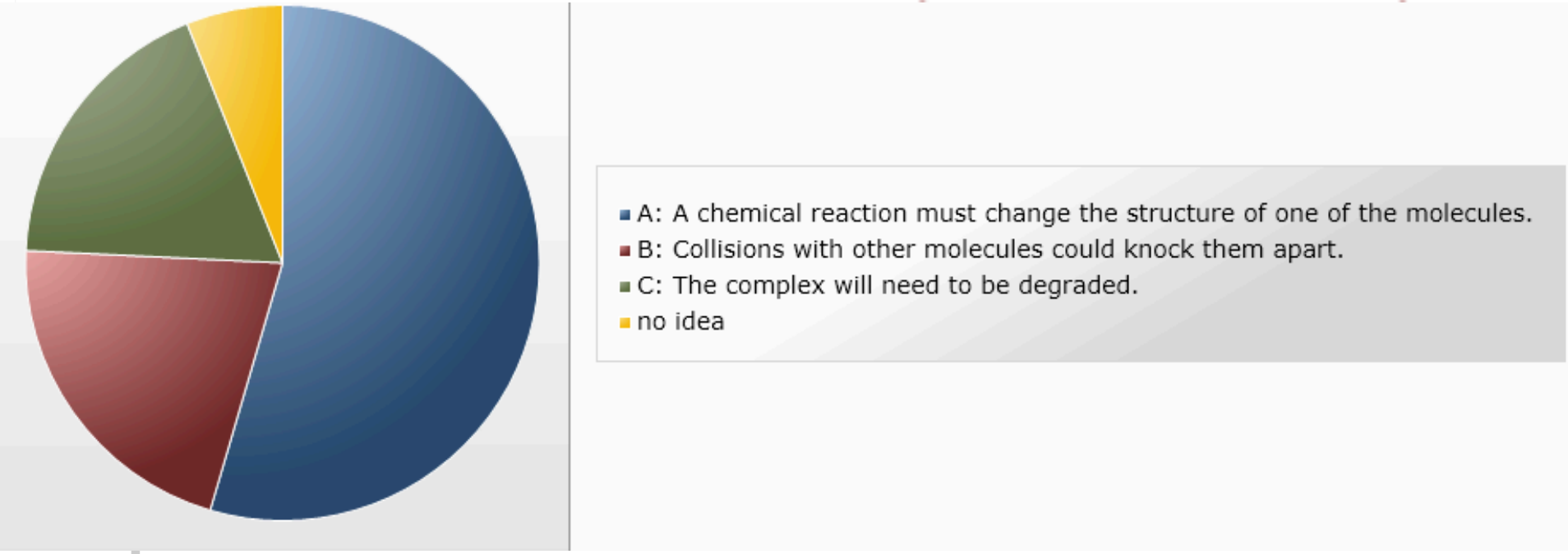


- B: If the mutation inactivated a gene that was harmful.
- C: If the mutation altered the gene product's activity.
- D: If the mutation had no effect on the activity of the gene product.

Once two molecules bind to one another, how could they come back apart again?

explain your thinking

- A: A chemical reaction must change the structure of one of the molecules.
- B: Collisions with other molecules could knock them apart.
- C: The complex will need to be degraded.
- D: They would need to bind to yet another molecule.
- no idea



Scientific method: Feynman

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What was the presumption about light before Newton's prism experiment?

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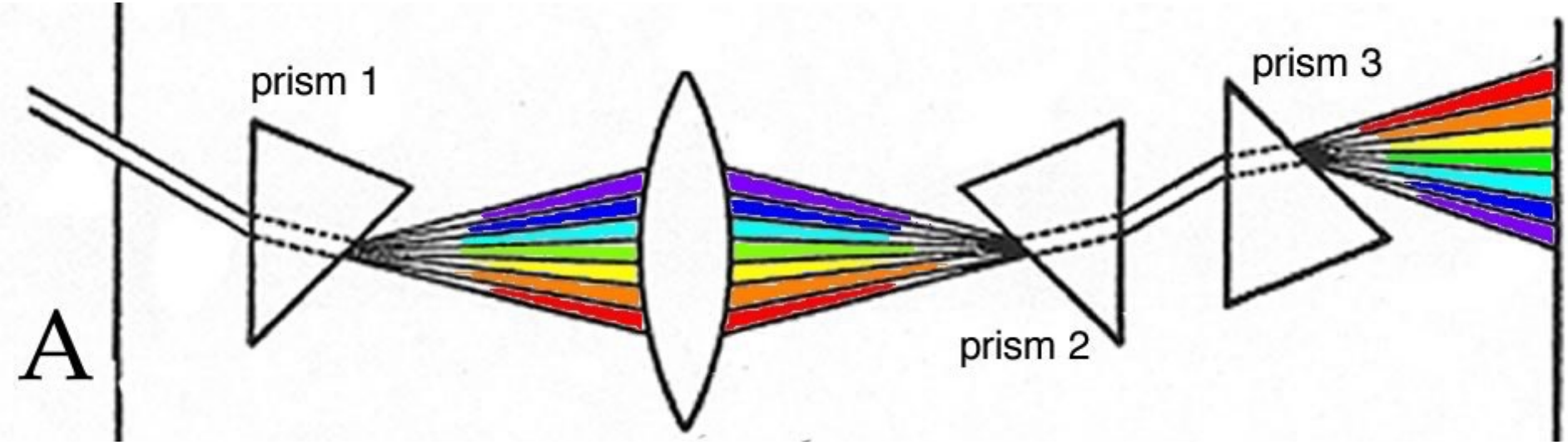

- What kinds of "control" experiments might you add ?
- How could you detect "invisible" forms of light?

chapter 1 p. 19

- How would you use Occam's razor to distinguish between two equally accurate models?
- What does it mean when there are two theoretical explanations for the same phenomena? How might you resolve this situation?
- Outline your approach to deciding whether a particular idea, model, or hypothesis is scientific.

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Q: What is the difference between a theory and a law? (consider gravity or energy)

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