Active Learning Simplified

Dr. Kate Biberdorf

June 7th, 2017

General Chemistry at UT

- Fall Semester
  - Principles in Chemistry I
- Spring Semester
  - Principles in Chemistry II
  - General Chemistry Lab

Hybrid Format for General Chemistry

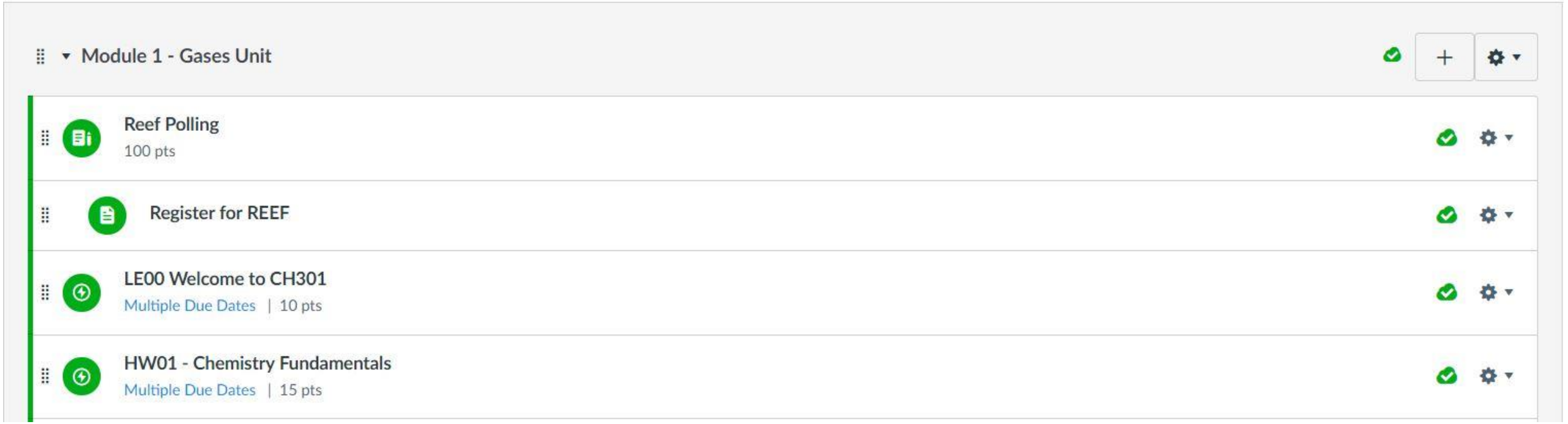
- Students complete short quizzes before attending lecture
- Students use iClicker Cloud during-lecture to facilitate active learning
- Students complete Sapling homework assignments after attending lecture

50 Minutes of Active Learning

- Pre-Class: Music
- 0-5: Warmup + iClicker Quiz

- 5-15: In-depth Discussion of Difficult Topic
- 15-20: iClicker Questions
- 20-25: In-depth Discussion of Difficult Topic
- 25-30: iClicker Questions
- 30-35: In-depth Discussion of Difficult Topic
- 35-40: iClicker Questions
- 40-45: In-depth Discussion of Difficult Topic
- 45-50: iClicker Questions

Day One: Student Registration



Day One: CLICK THE BUTTON

Please use the below button to register for REEF. If you have any issues, please visit this website for help.

This tool needs to be loaded in a new browser window

Load Reef Polling in a new window

iClicker: During Class

- Students complete ‘Quizzes’ at the beginning of lecture
  - Students **may not** use external resources
    - “Notes not your Neighbor”
  - Graded on accuracy

- Students complete ‘Questions’ during lecture
  - Students **may** use external resources
  - Graded on participation

iClicker
Active learning simplified

Quiz – Teacher Perspective

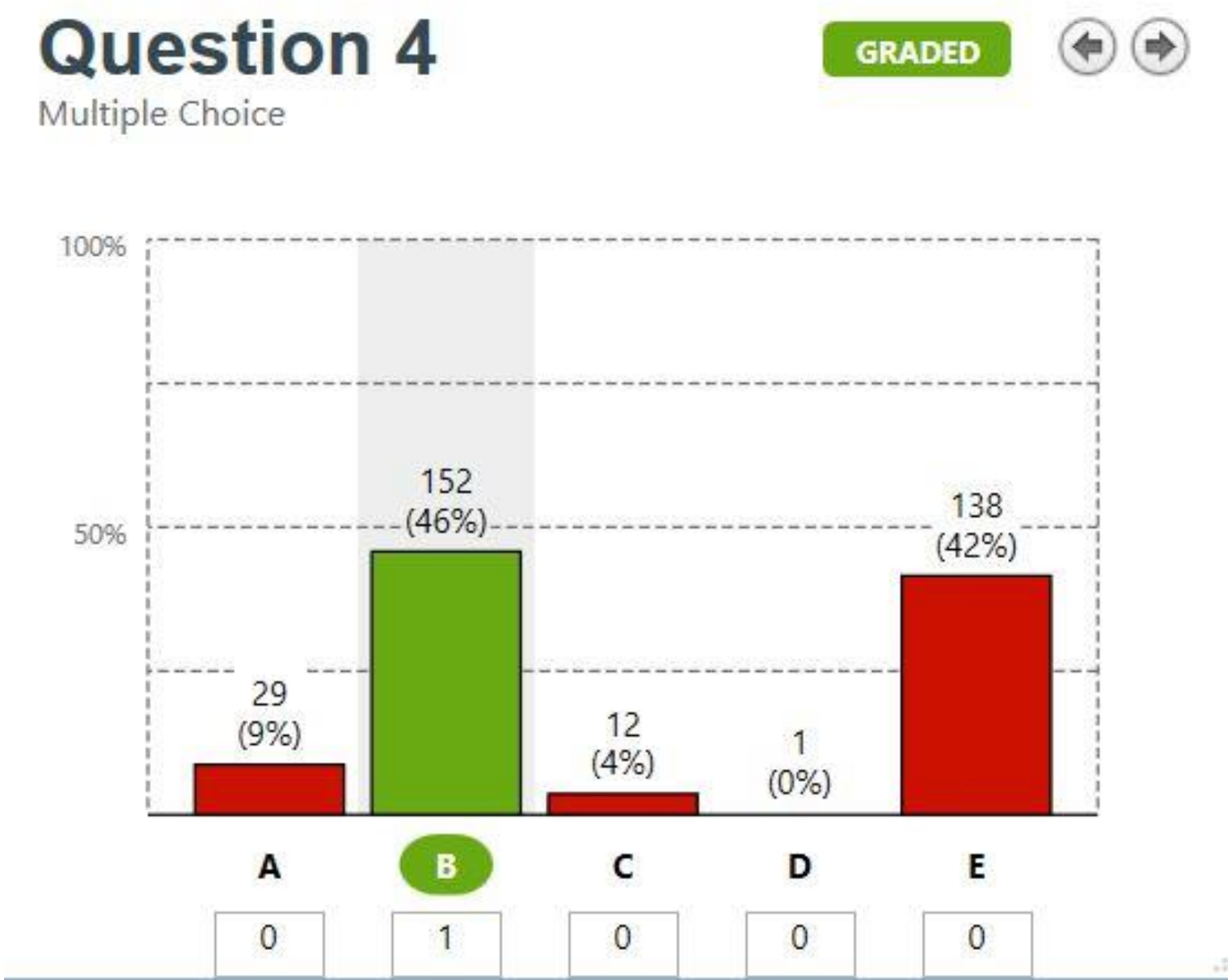
In this cell, what will serve as the anode and the cathode, respectively?

A. Cu and Sc
B. Sc and Cu
C. Cu^{2+} and Cr^{3+}
D. Pb and Sc^{3+}
E. Sc and Cu^{2+}

Quiz - Teacher

In this cell, what will serve as the anode and the cathode, respectively?

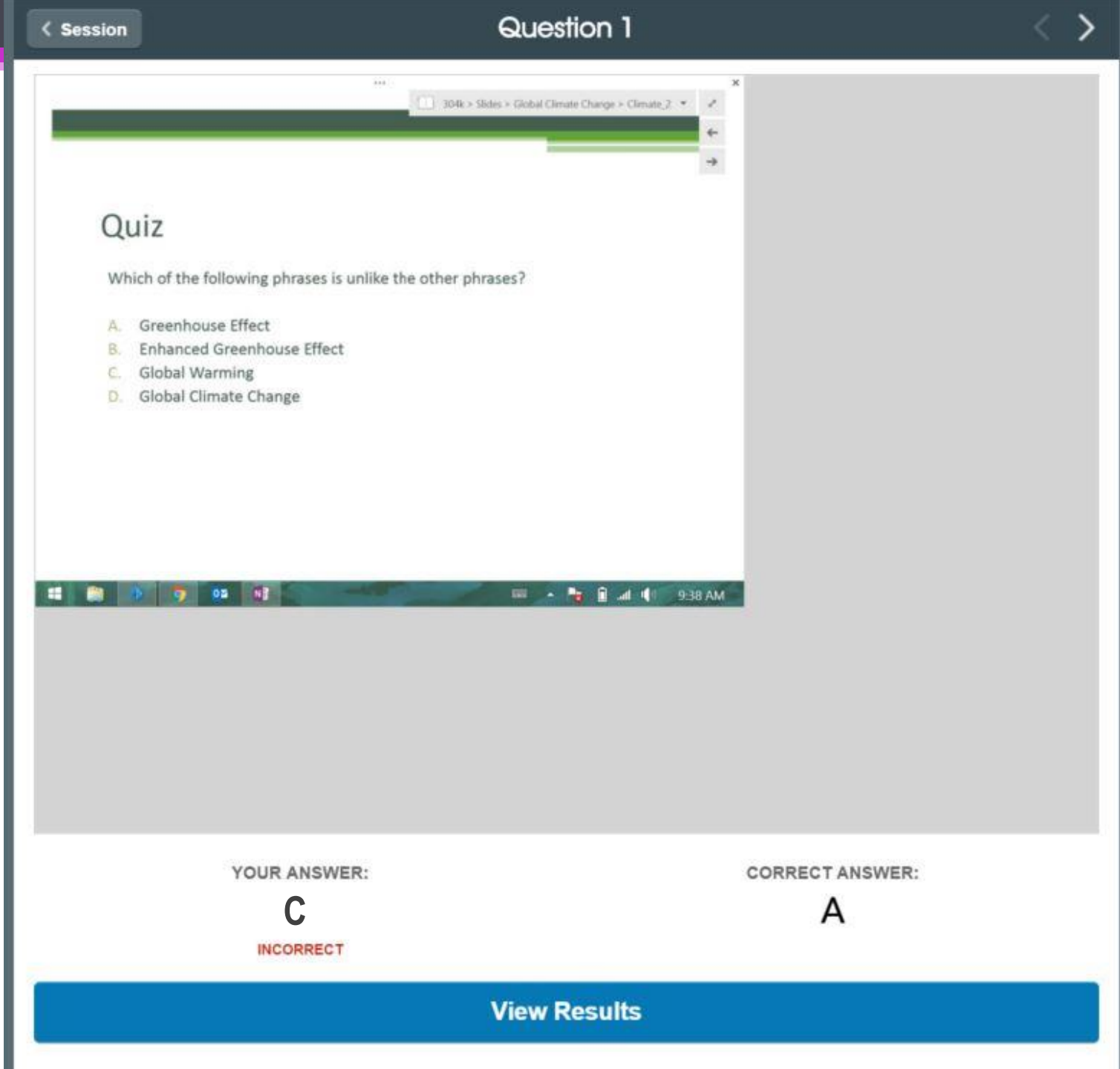
A. Cu and Sc
B. Sc and Cu
C. Cu^{2+} and Cr^{3+}
D. Pb and Sc^{3+}
E. Sc and Cu^{2+}



Quiz - Student

Which of the following phrases is unlike the other phrases?

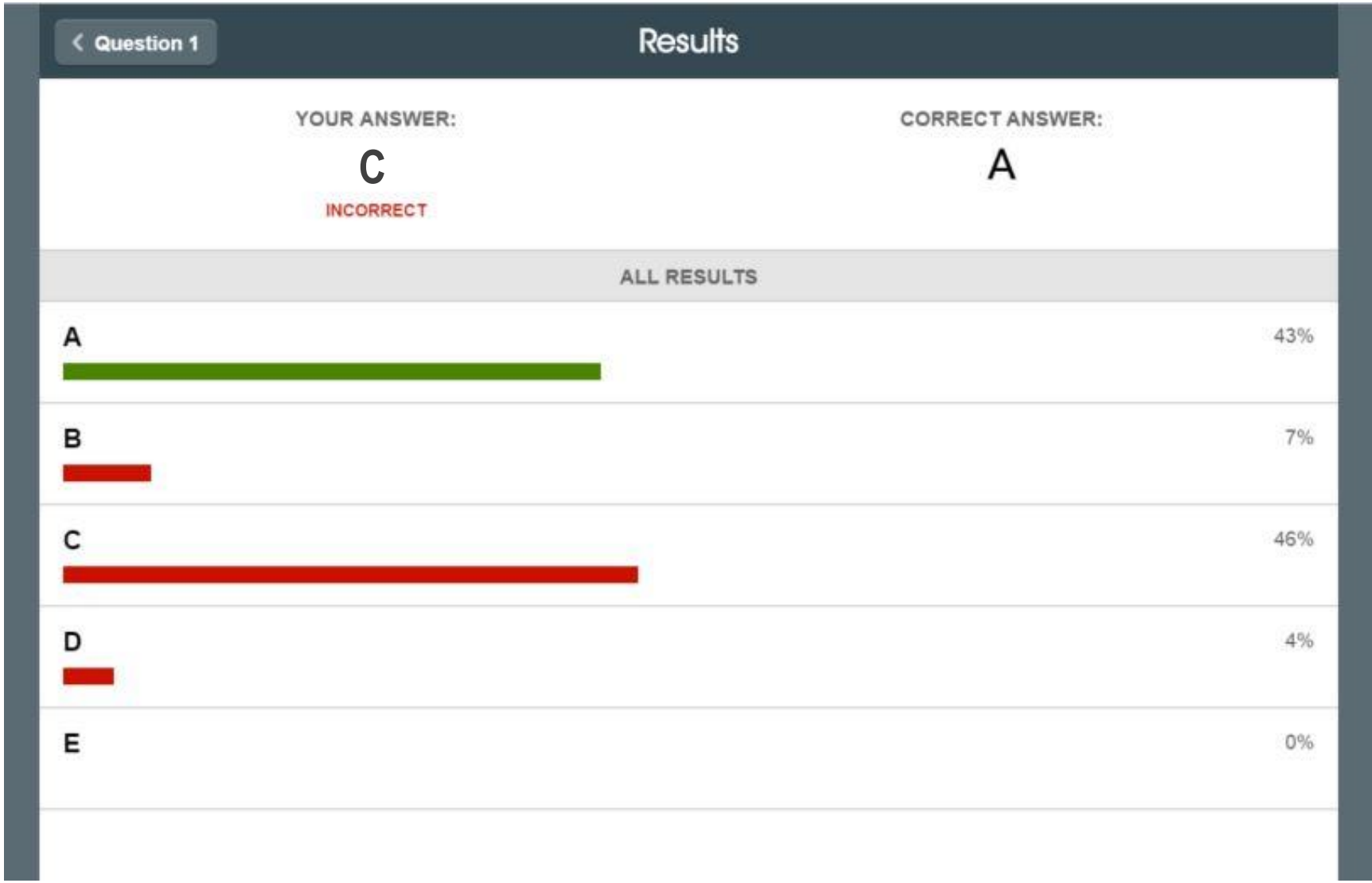
A. Greenhouse Effect
B. Enhanced Greenhouse Effect
C. Global Warming
D. Global Climate Change



Quiz - Student

Which of the following phrases is unlike the other phrases?

A. Greenhouse Effect
B. Enhanced Greenhouse Effect
C. Global Warming
D. Global Climate Change



Question – Teacher Perspective

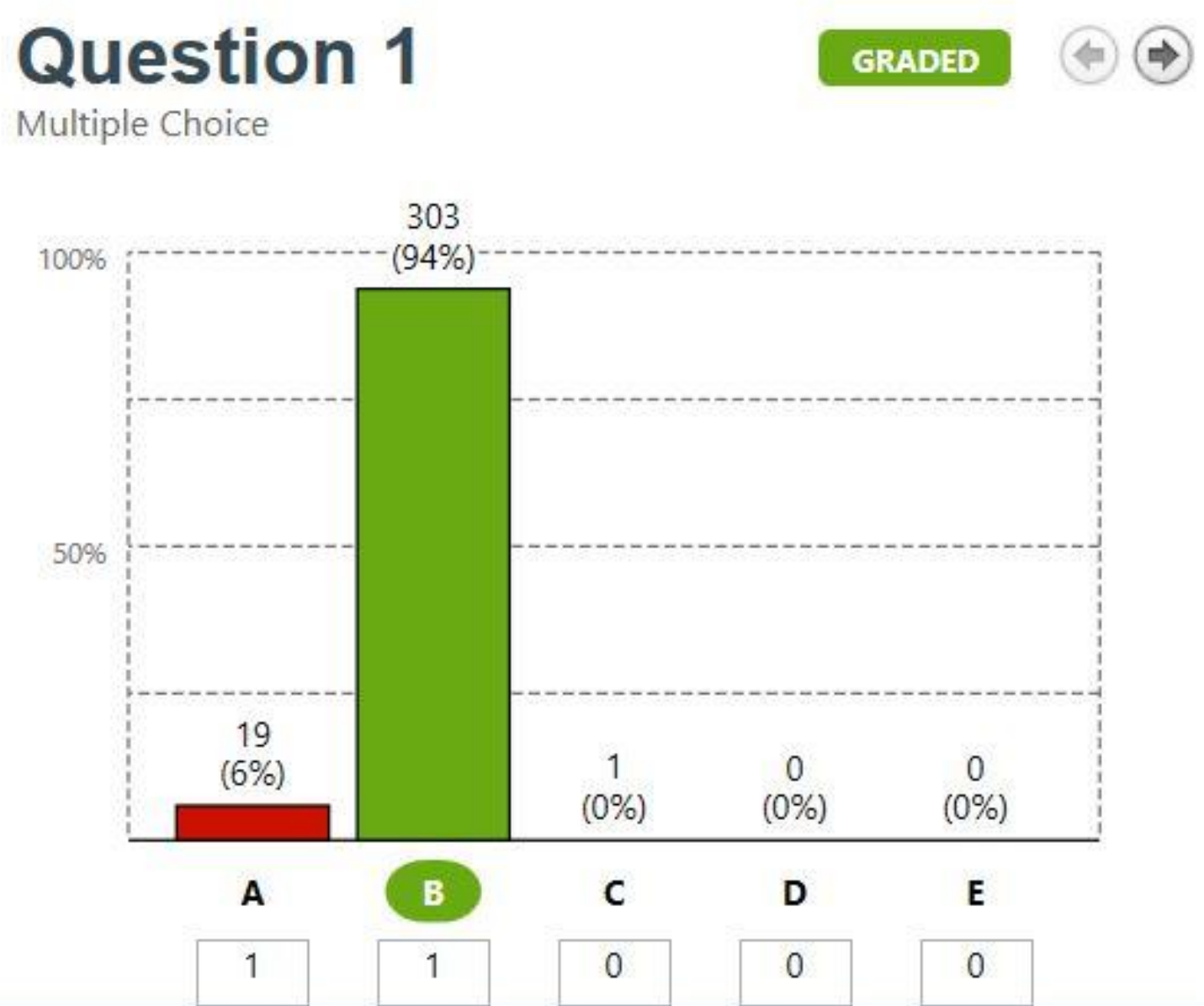
You have been asked to roll two tires up a 50 foot hill. One tire weighs 100 pounds and one tire weighs 500 pounds. Which tire will require more energy to roll up the hill?

A. 100 pound tire
B. 500 pound tire

Question - Teacher

You have been asked to roll two tires up a 50 ft hill. One tire weighs 100 pounds and one tire weighs 500 pounds. Which tire will require more energy to roll up the hill?

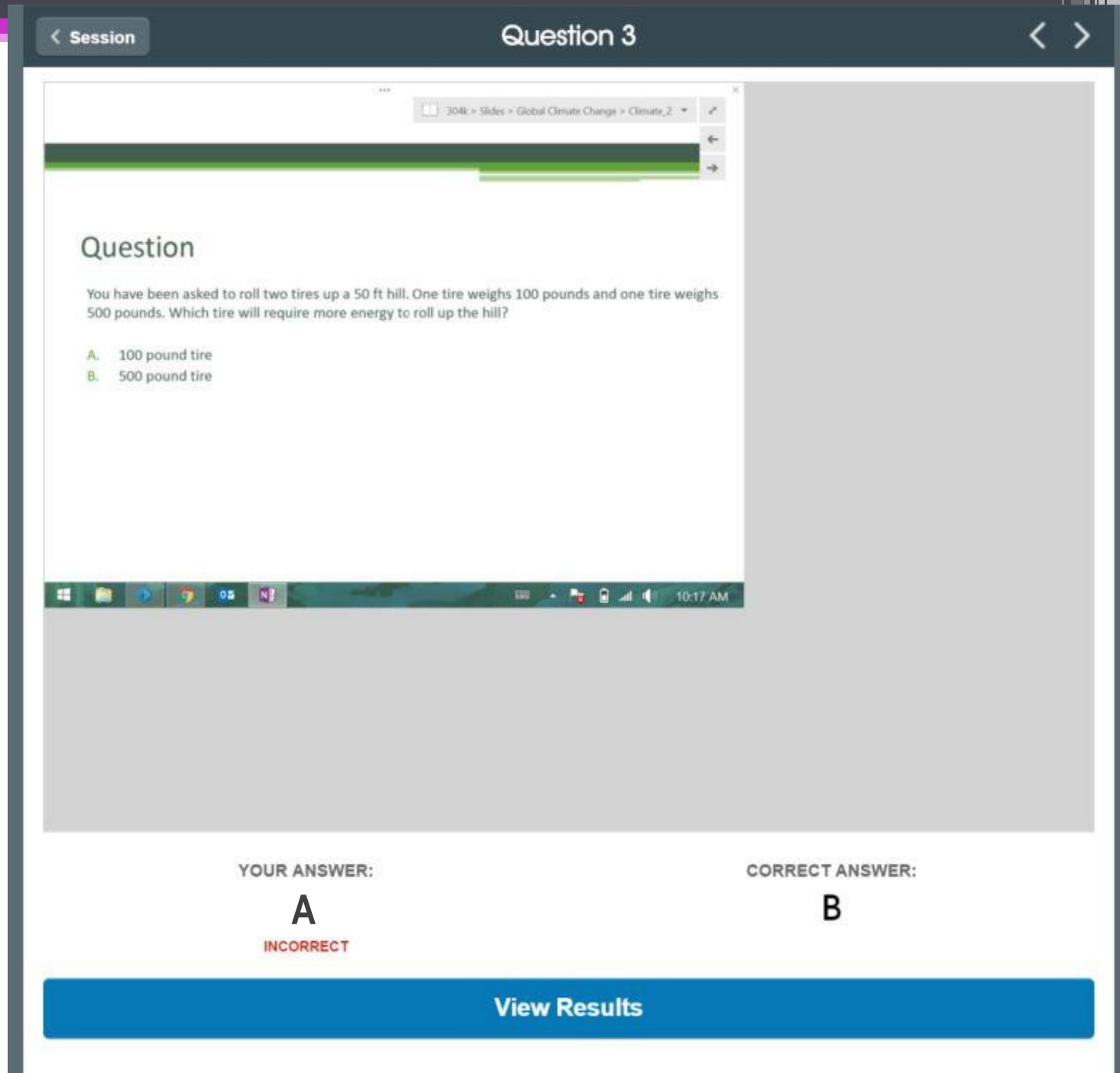
A. 100 pound tire
B. 500 pound tire



Question - Student

You have been asked to roll two tires up a 50 foot hill. One tire weighs 100 pounds and one tire weighs 500 pounds. Which tire will require more energy to roll up the hill?

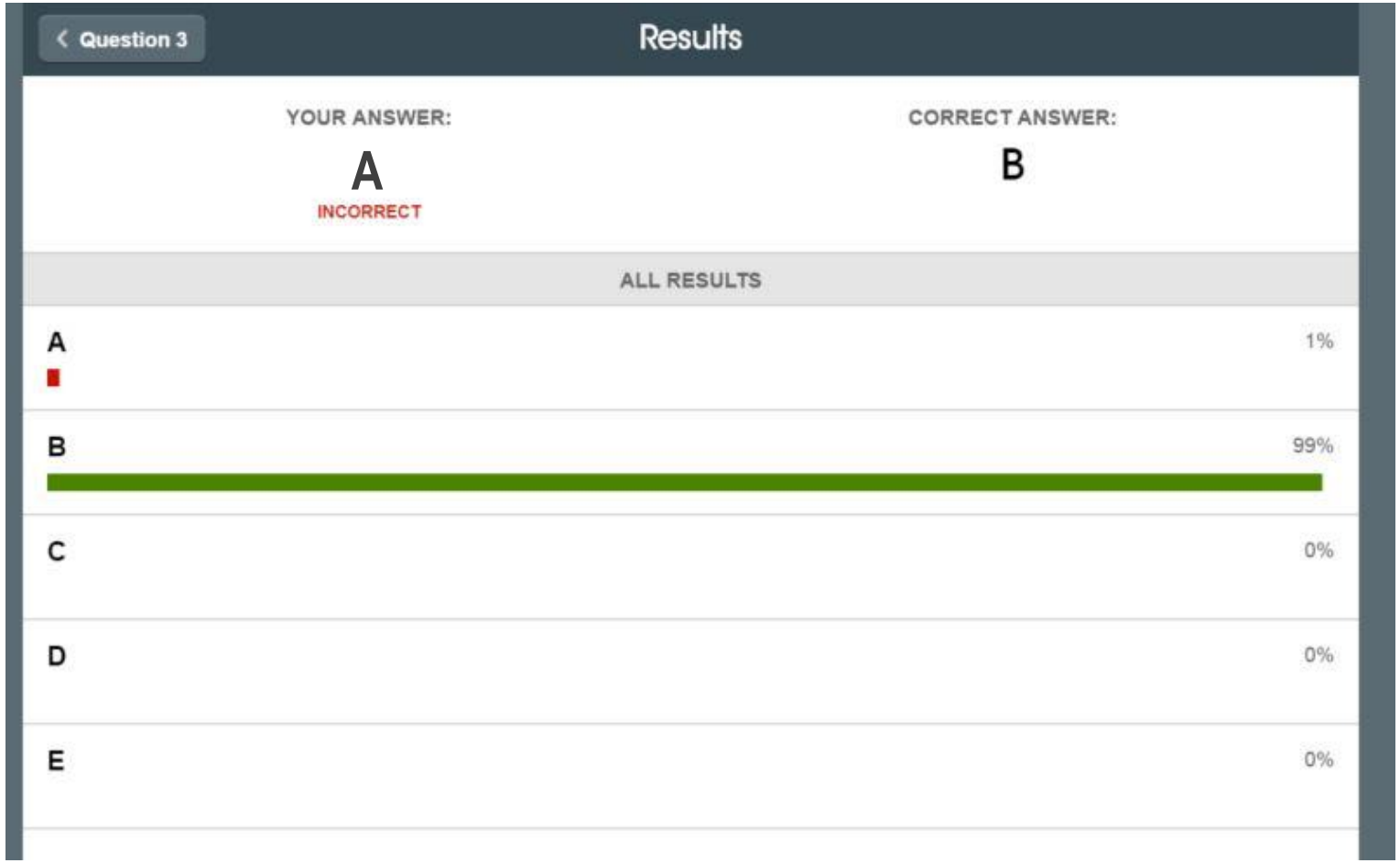
A. 100 pound tire
B. 500 pound tire



Question - Student

You have been asked to roll two tires up a 50 foot hill. One tire weighs 100 pounds and one tire weighs 500 pounds. Which tire will require more energy to roll up the hill?

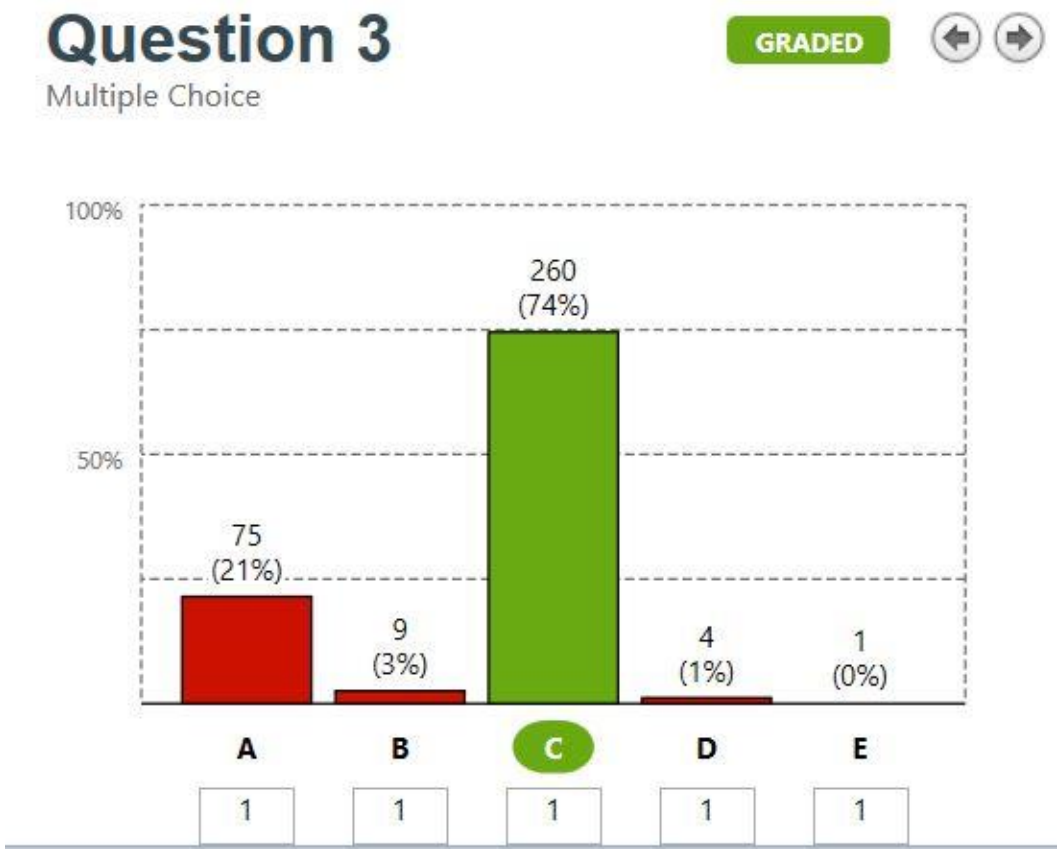
A. 100 pound tire
B. 500 pound tire



The 80% Rule

Consider the following three structure of water. Which molecule will evaporate the fastest?

A. D_2O
B. HOD
C. H_2O
D. DOH



REEF: Question Types

- Multiple Choice
- Short Answer
- Numeric Entry
- Target

REEF: Short Answer

Question 1

GRADED

Short Answer

Response	Votes	%	Points
Th	277	89%	1
Pu	9	3%	1
He	6	2%	1
U	3	1%	1
90	3	1%	1
x	3	1%	1
thorium	2	1%	1
Pa	1	0%	1
Q	1	0%	1
th232	1	0%	1
10	1	0%	1
E	1	0%	1

Question 1

GRADED

Short Answer

Response	Votes	%	Points
1.5	1	0%	1
10	1	0%	1
238 Th 90	1	0%	1
90	3	1%	1
A	1	0%	1
E	1	0%	1
He	6	2%	1
Pa	1	0%	1
Pu	9	3%	1
Q	1	0%	1
Th	277	89%	1
th232	1	0%	1

REEF: Short Answer (Caution)

Question 2

GRADED

Short Answer

Response	Votes	%	Points
br	2	1%	1
Nd	1	0%	1
Kr	1	0%	1
U236	1	0%	1
a	1	0%	1
X	1	0%	1
b	1	0%	1
96	1	0%	1
huh	1	0%	1
3.15	1	0%	1
Other			

REEF: Numeric

Question 2

GRADED

Numeric

	Response	Votes	%	Points
☑	1.39	161	50%	2
☐	1.49	63	20%	1
☐	1.53	17	5%	1
☐	1.63	8	2%	1
☑	1.4	8	2%	2
☐	1.23	7	2%	1
☐	1.51	7	2%	1
☐	1.5	5	2%	1
☑	1.38	4	1%	2
☐	3	4	1%	1
☐	1.65	3	1%	1
☐	1.43	3	1%	1

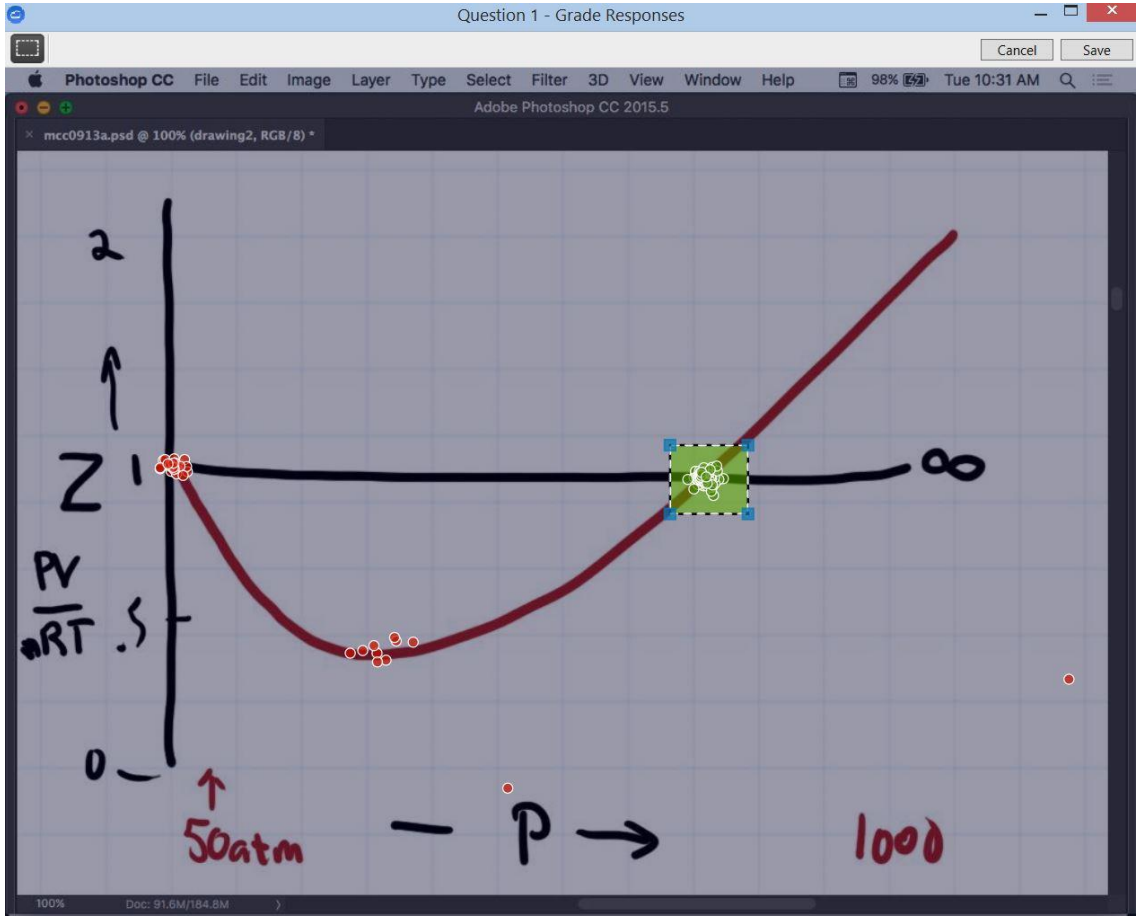
Question 2

GRADED

Numeric

	Response	Votes	%	Points
☐	1.25	1	0%	1
☐	1.3	2	1%	1
☐	1.33	1	0%	1
☐	1.34	1	0%	1
☐	1.355	1	0%	1
☑	1.38	4	1%	2
☑	1.39	161	50%	2
☑	1.4	8	2%	2
☐	1.41	2	1%	1
☐	1.43	3	1%	1
☐	1.47	2	1%	1
☐	1.48	1	0%	1

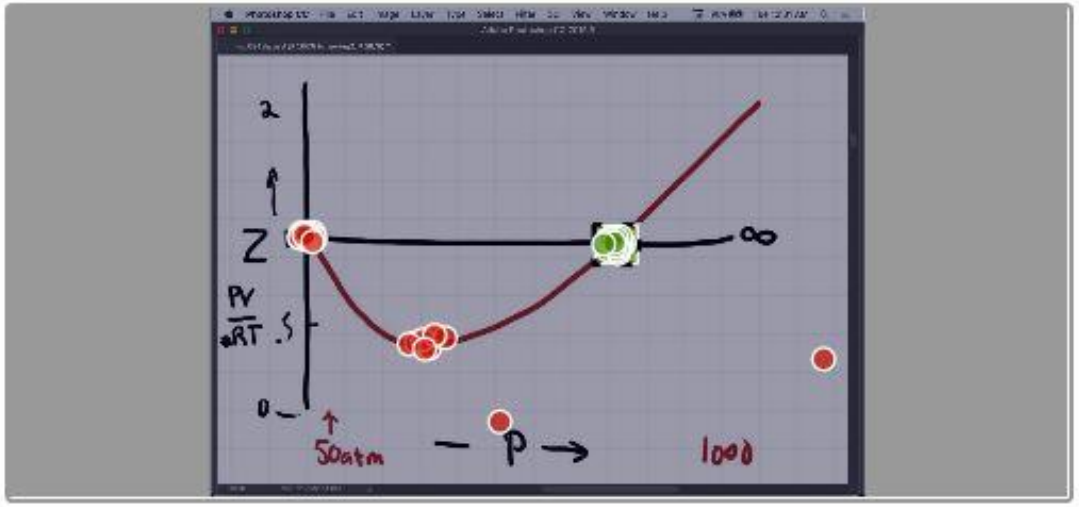
REEF: Target



Question 1

GRADED

Target



Response	Votes	%	Points
Correct	351	90	1
Incorrect	38	10	1

REEF facilitates ‘Think, Pair, Share’

- Think
  - Students consider the question
  - Students submit an answer individually
- Pair
  - The instructor shows the results (no answer is given)
  - Students form groups to discuss their answers
  - Students must agree on one answer
- Share
  - Students submit an answer individually
  - The instructor shows the results (an answer is given)

‘**Think**, Pair, Share’

In this cell, what will serve as the anode and the cathode, respectively?

A. Cu and Sc
B. Sc and Cu
C. Cu^{2+} and Cr^{3+}
D. Pb and Sc^{3+}
E. Sc and Cu^{2+}

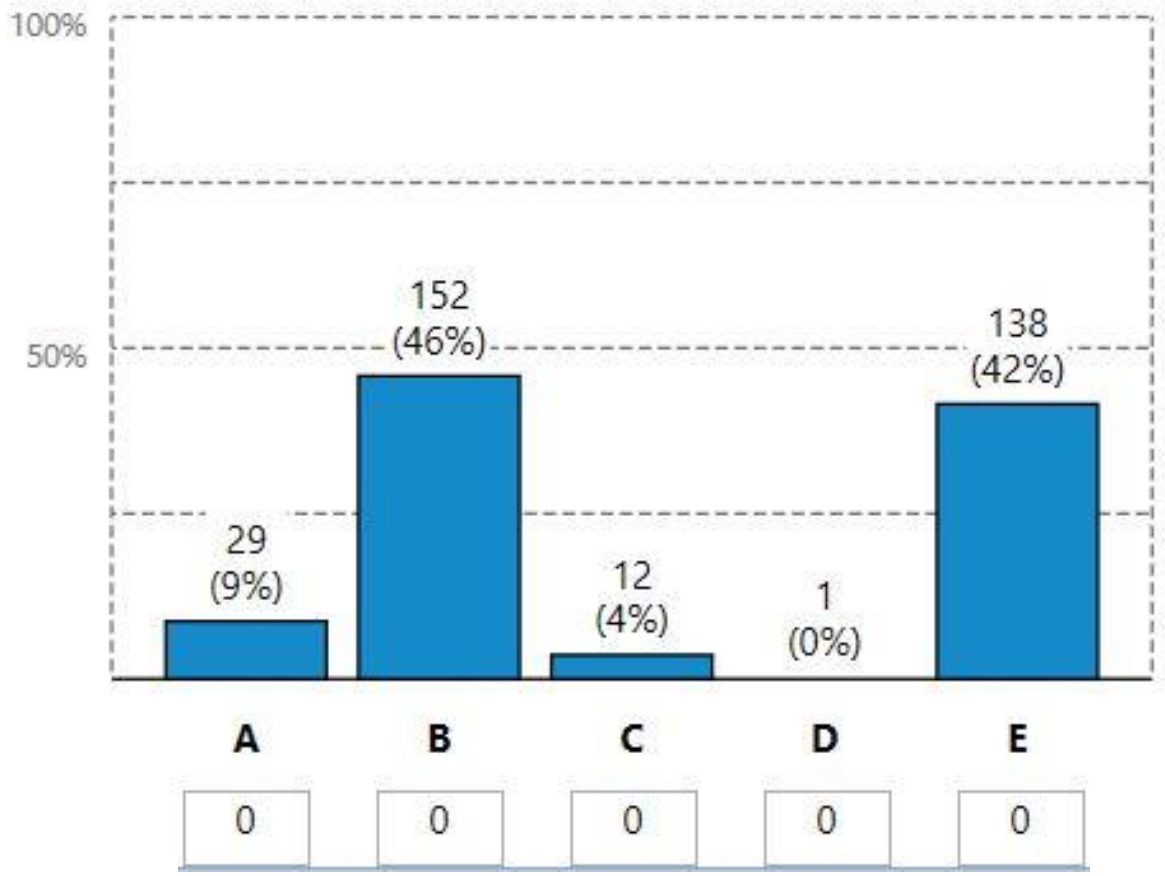
‘Think, **Pair**, Share’

Question 4

Multiple Choice

In this cell, what will serve as the anode and the cathode, respectively?

A. Cu and Sc
B. Sc and Cu
C. Cu^{2+} and Cr^{3+}
D. Pb and Sc^{3+}
E. Sc and Cu^{2+}



‘Think, Pair, **Share**’

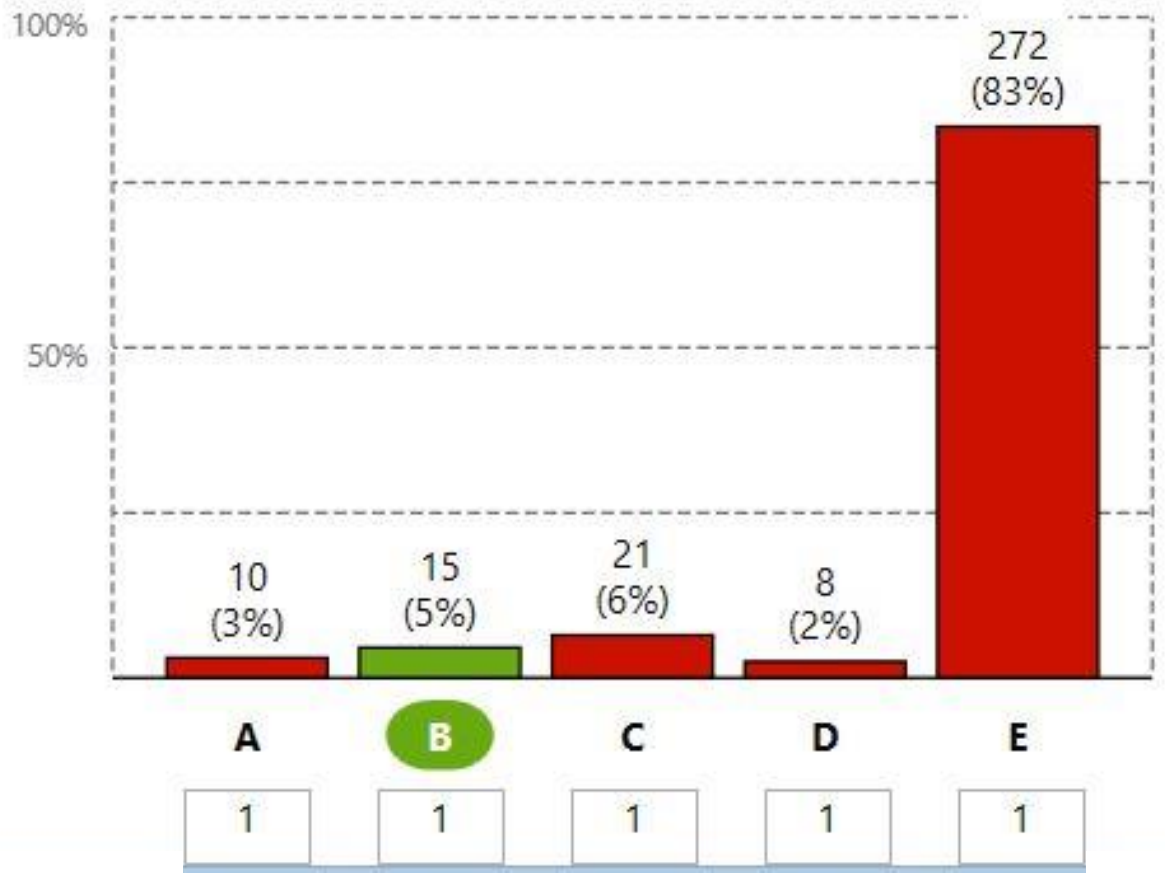
In this cell, what will serve as the anode and the cathode, respectively?

A. Cu and Sc
B. Sc and Cu
C. Cu^{2+} and Cr^{3+}
D. Pb and Sc^{3+}
E. Sc and Cu^{2+}

Question 5

Multiple Choice

GRADED



After Class

- Grade your session immediately after class

iClicker

Active learning simplified

iClicker: Advice

- Use the first day of iClicker polling to introduce the question formats
- Do not count ‘iClicker’ points until the second or third class day
- Sometimes the internet malfunctions
  - We always drop five days of iClicker points to avoid student complaints

Why choose iClicker?

- iClicker is ready to go
  - No need to import questions to the ‘polling’ platform
  - No need to code questions and slides
- Students can use their smart device or laptop
- Students can see annotated slides in real-time
- Students prefer iClicker over other platforms

Contact Information

- Kate Biberdorf
- Kate.Biberdorf@cm.utexas.edu
- @FunwithChem