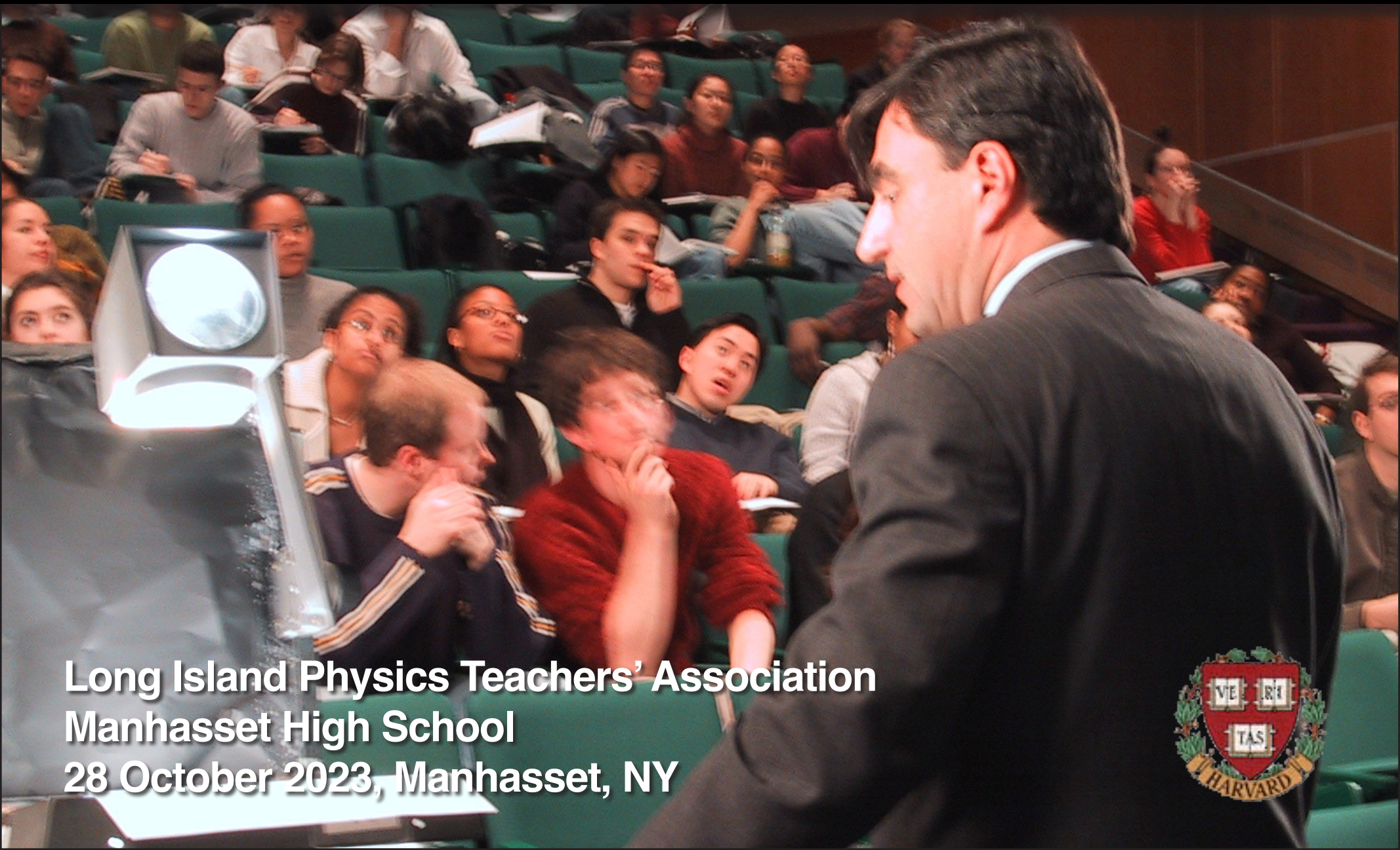


Advancing the Quality of Physics Teaching using Peer Instruction



Long Island Physics Teachers' Association
Manhasset High School
28 October 2023, Manhasset, NY



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quick reflection

think of something you are good at

The background of the slide is a faded image of a book cover. It features a portrait of a man with a beard and a turban, looking slightly to the side. The text 'quick reflection' is printed in a bold, black, sans-serif font at the top of the cover. The book is bound in a light-colored, textured material, possibly leather or cloth, with visible stitching along the edges.

quick reflection

how did you become good at that?



1. The first step in the synthesis of a new drug is the identification of a target molecule.

2. The second step is the design of a molecule that will interact with the target.

3. The third step is the synthesis of the molecule.

4. The fourth step is the testing of the molecule in animal models.

5. The fifth step is the testing of the molecule in human trials.

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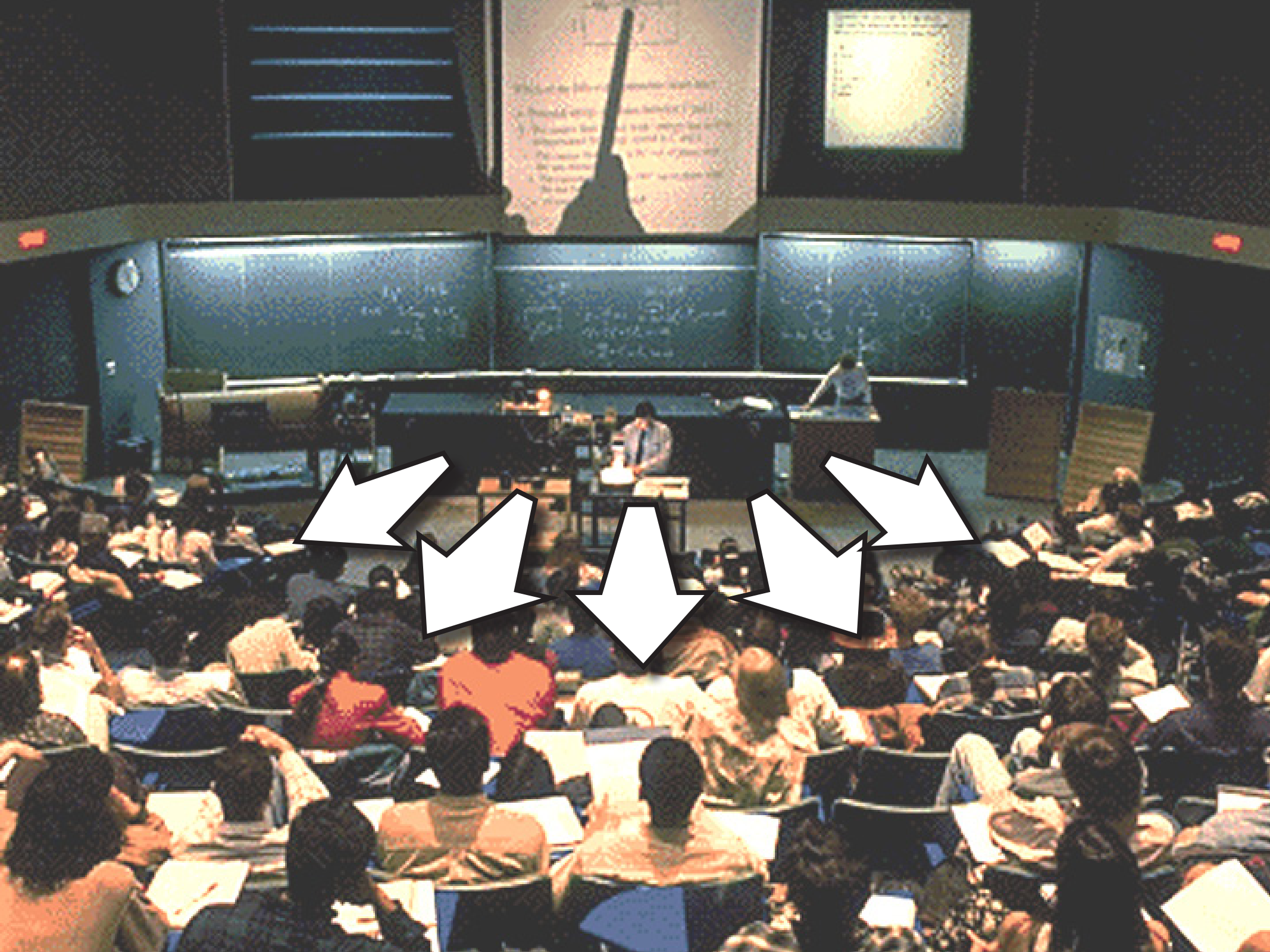
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an illusion. . .





1. transfer of information



1. transfer of information

2. assimilation of that information



1. transfer of information (in class)

2. assimilation of that information



1. transfer of information (in class)

2. assimilation of that information (out of class)



**Should focus
on THIS!**

1. transfer of information (in class)

2. assimilation of that information (out of class)



1. transfer of information (in class)

2. assimilation of that information (out of class)



1. transfer of information (out of class)

2. assimilation of that information (in class)

The word "Peer" is written in a large, white, sans-serif font with a light blue outline. A dashed yellow line with arrowheads at both ends forms a circle around the two 'e's. A dotted blue line starts from the bottom left, passes through the 'e's, and continues towards the top right.

Peer

1. transfer of information (out of class)

2. assimilation of that information (in class)

The word "INSTRUCTION" is written in a white, sans-serif font, tilted at an angle. A dotted blue line starts from the bottom left, passes through the 'e's, and continues towards the top right.

INSTRUCTION

question

question



think

question



think



poll

question



think



poll



discuss

question



think



poll



discuss



repoll

question



think



poll



discuss



repoll



explain

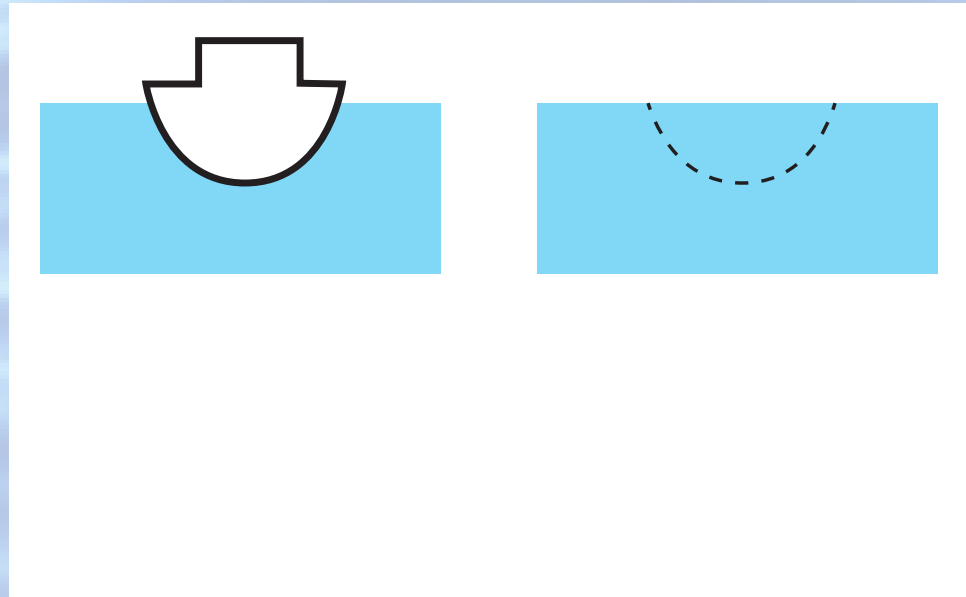




Archimedes Principle

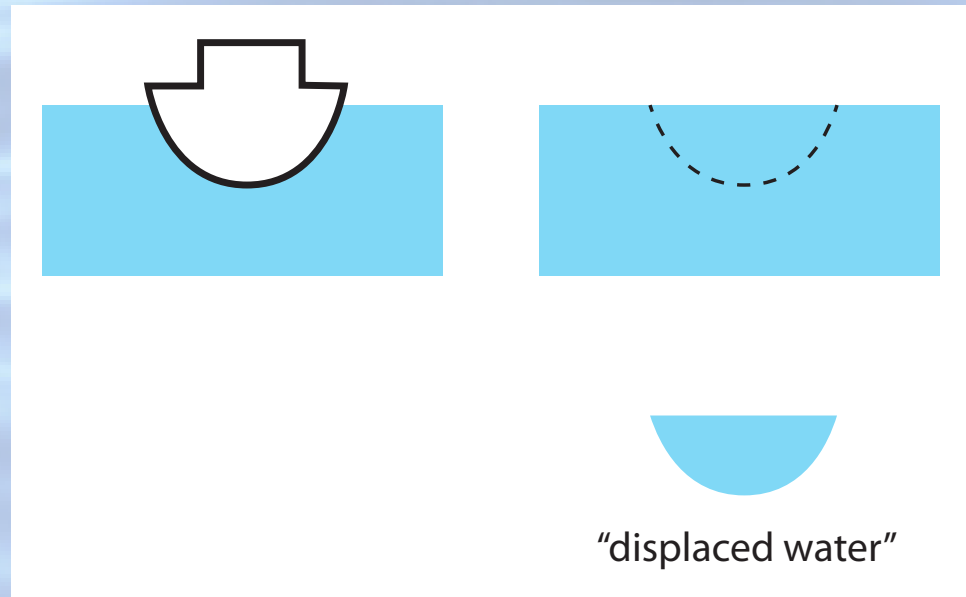
An object submerged either fully or partially in a fluid experiences an upward buoyant force the magnitude of which is equal to the magnitude of the force of gravity exerted on the fluid displaced by the object.

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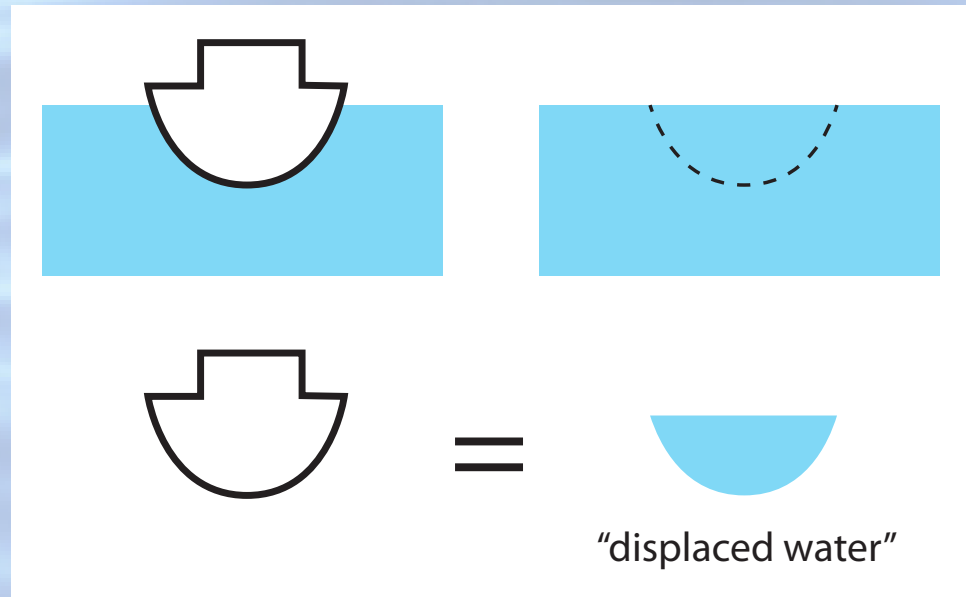
The volume of displaced fluid is equal to the volume of the submerged portion of the object.

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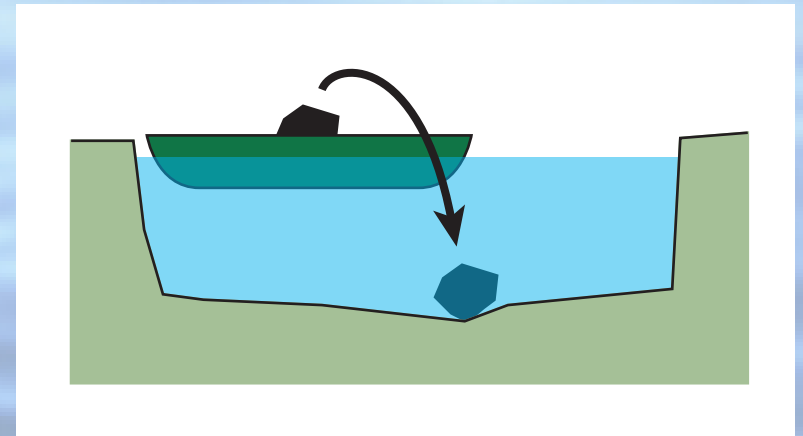
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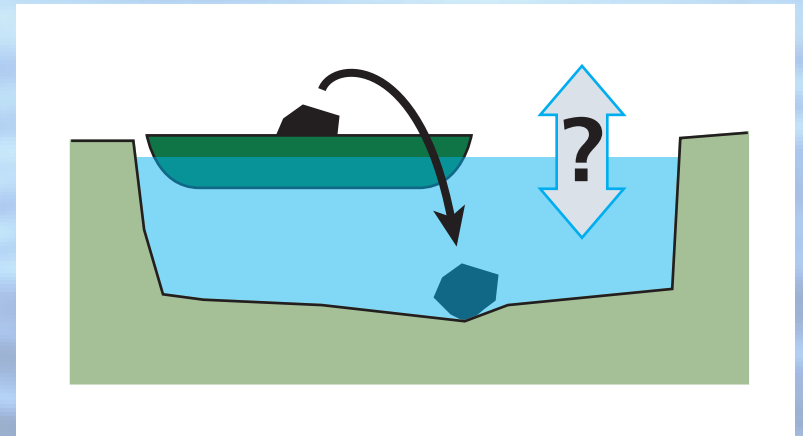


The volume of displaced fluid is equal to the volume of the submerged portion of the object.

A boat carrying a large boulder is floating on a small pond. The boulder is thrown overboard and sinks to the bottom of the pond.



A boat carrying a large boulder is floating on a small pond. The boulder is thrown overboard and sinks to the bottom of the pond.



After the boulder sinks to the bottom of the pond, the level of the water in the pond is

1. higher than
2. the same as
3. lower than

it was when the boulder was in the boat.

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A boat carrying a large boulder is

flo

de

to

Before I tell you the answer, let's analyze what happened.

A

th

1.

2.

3.

it was when the boulder was in the boat.

A boat carrying a large boulder is

flo

de

to

Before I tell you the answer, let's analyze what happened. You...

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th

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Before I tell you the answer, let's analyze what happened. You...

A

th

1. made a commitment

1.

2.

3.

it was when the boulder was in the boat.

A boat carrying a large boulder is

flo

de

to

Before I tell you the answer, let's analyze what happened. You...

A

th

1. made a commitment

2. externalized your answer

1.

2.

3.

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A boat carrying a large boulder is

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Before I tell you the answer, let's analyze what happened. You...

A

th

1. made a commitment

2. externalized your answer

3. moved from the answer/fact to reasoning

1.

2.

3.

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Before I tell you the answer, let's analyze what happened. You...

A

th

1.

2.

3.

1. made a commitment

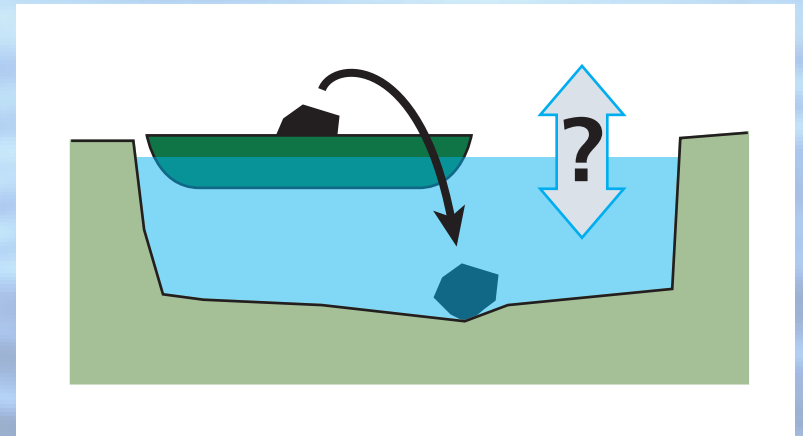
2. externalized your answer

3. moved from the answer/fact to reasoning

4. became emotionally invested in the learning process

it was when the boulder was in the boat.

A boat carrying a large boulder is floating on a small pond. The boulder is thrown overboard and sinks to the bottom of the pond.

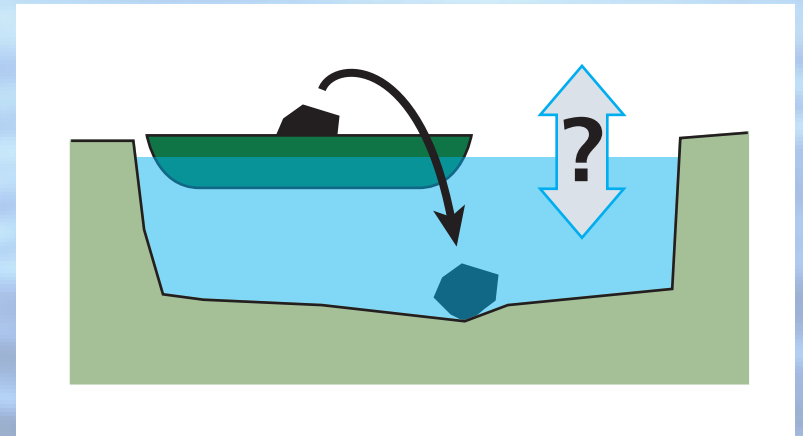


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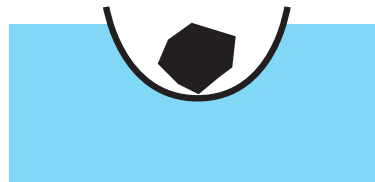


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- 1. higher than
- 2. the same as
- 3. lower than ✓

it was when the boulder was in the boat.

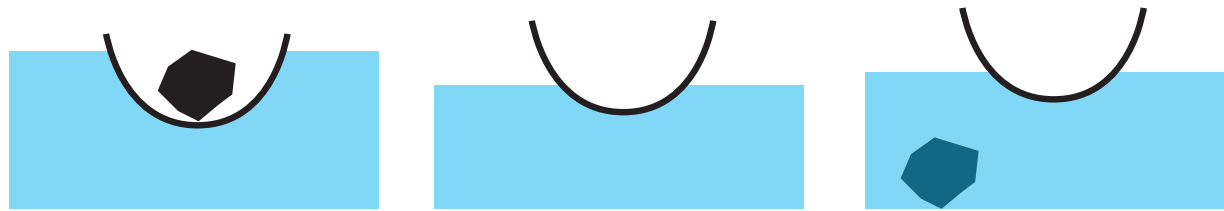
remember: amount of displaced water



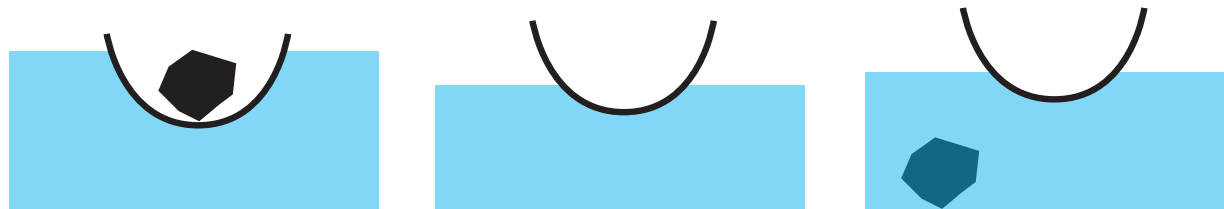
remember: amount of displaced water



remember: amount of displaced water

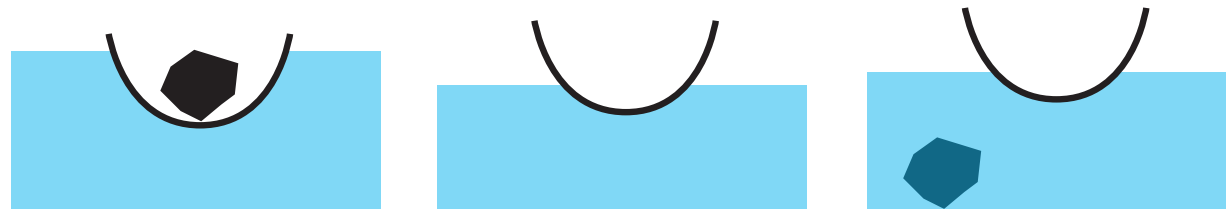


remember: amount of displaced water



displaced
water

remember: amount of displaced water

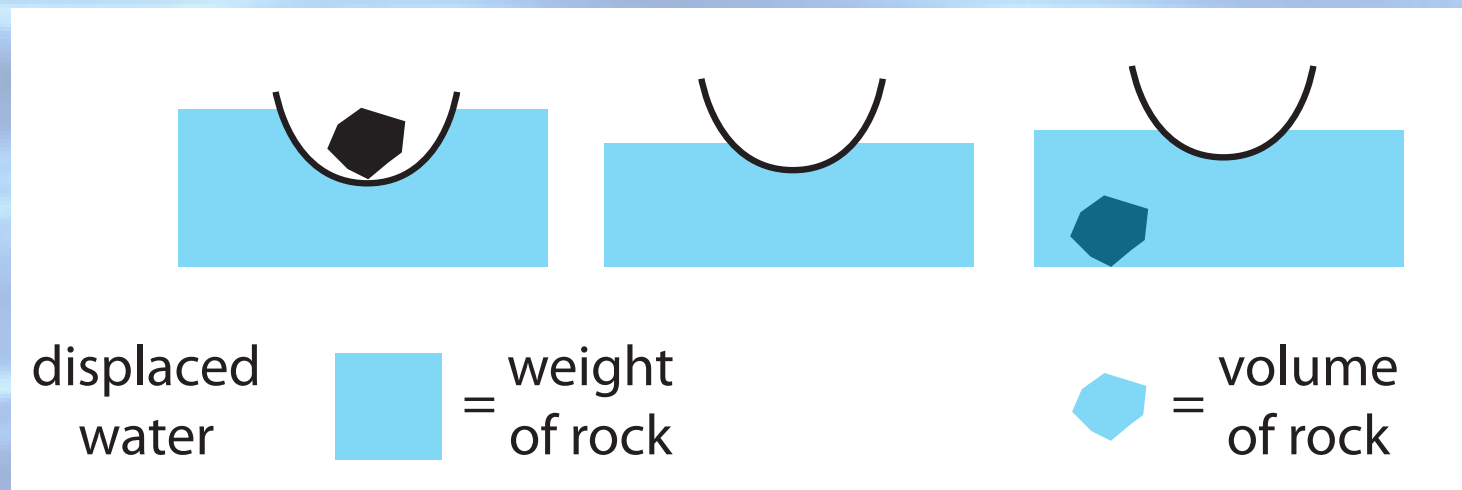


displaced
water



= weight
of rock

remember: amount of displaced water



remember: amount of displaced water



points worth noting

- **my “clear” lecture wasn’t very good**
- **discussion promoted “aha” moments**

The image features a light red background with a diagonal split into a light blue section on the left and a light red section on the right. The word 'Peer' is written in a large, white, sans-serif font, tilted upwards from left to right. A dashed yellow line with arrowheads at both ends forms a circle around the 'ee' portion of the word. Below 'Peer', the words 'back to pl' are written in a bold, red, sans-serif font, also tilted upwards. A dotted blue line starts from the end of 'back to pl' and extends diagonally down towards the word 'INSTRUCTION'. The word 'INSTRUCTION' is written in a white, sans-serif font, tilted upwards, and is positioned below the dotted blue line. A dashed yellow line with an arrowhead at its end starts from the left edge of the image and points towards the word 'INSTRUCTION'.

Peer

back to pl

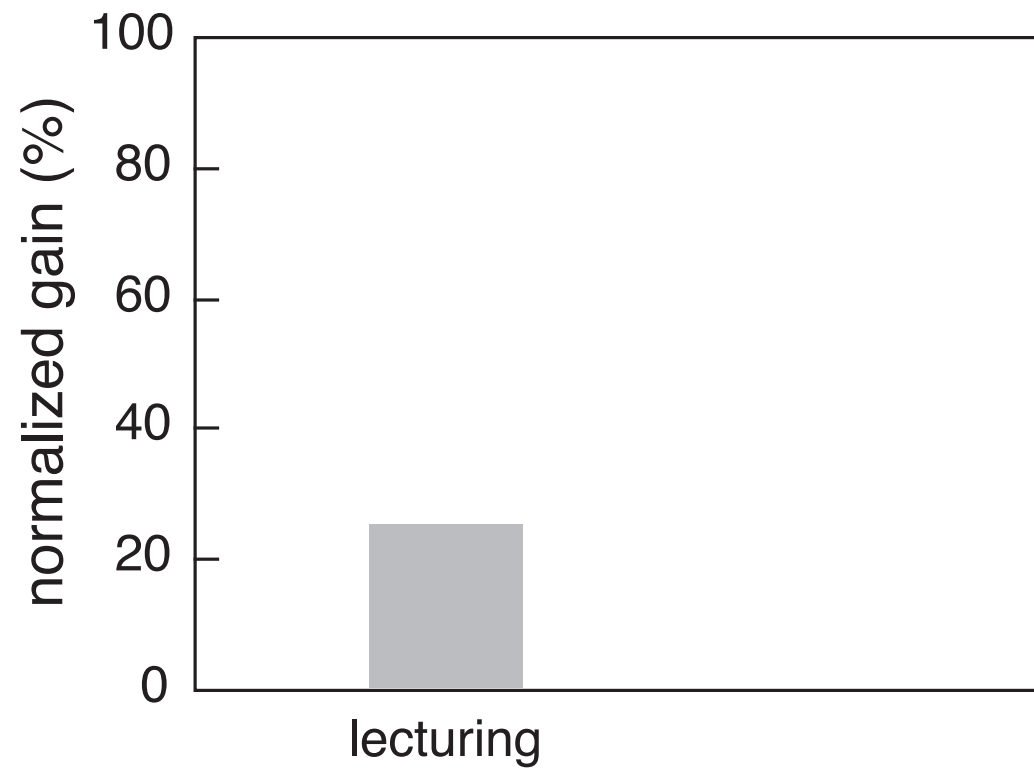
INSTRUCTION

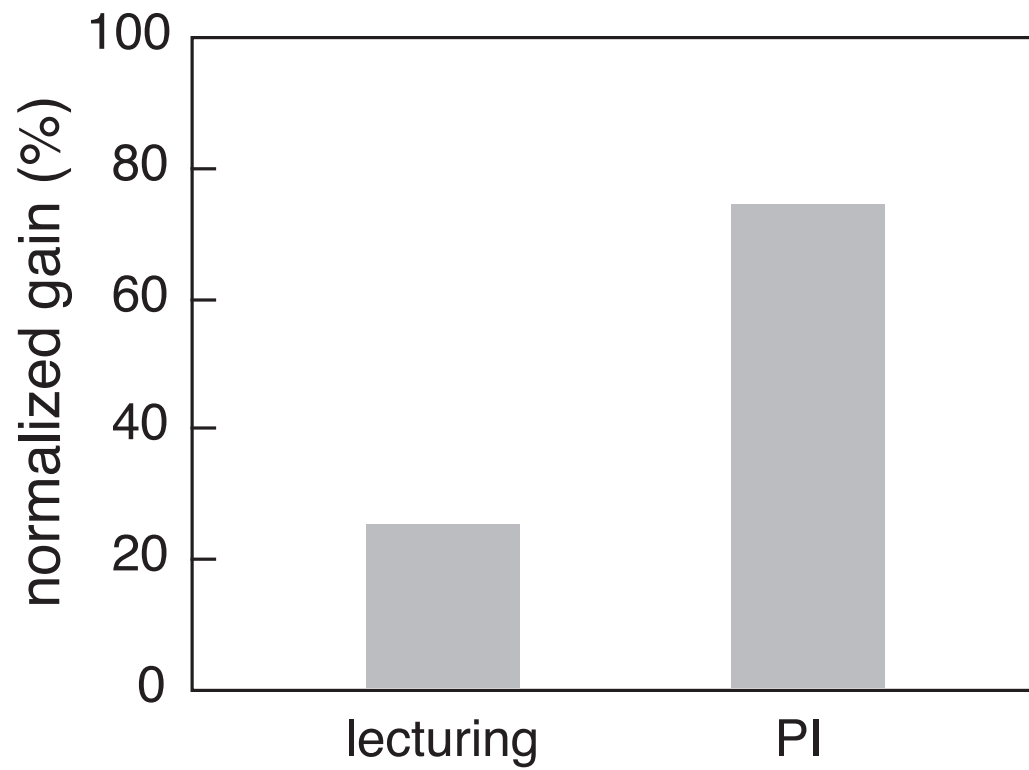




Higher learning gains

INSTRUCTION







Higher learning gains

Better retention

INSTRUCTION



Education is not just about:

- **transferring information**
- **getting students to do what we do**



Education is not just about:

- **transferring information**
- **getting students to do what we do**

active engagement/social interaction a must!

for a copy of these slides

mazur.harvard.edu

Follow me!



@eric_mazur