Technology Integration Project (TIP)

With support from an NSERC PromoScience Grant

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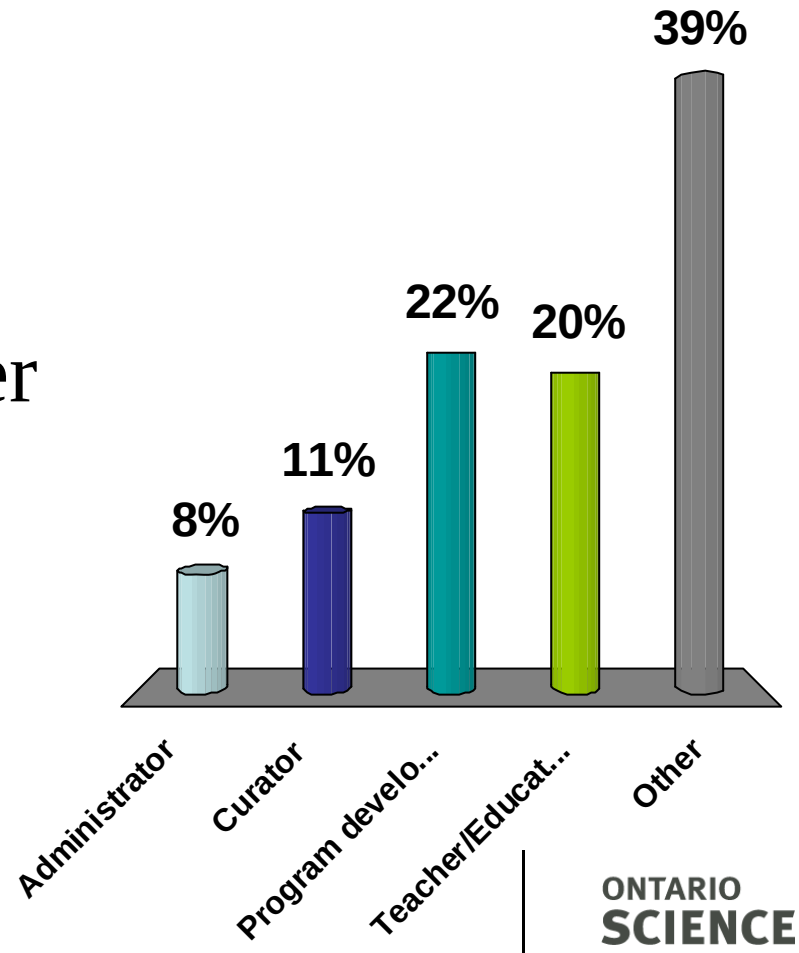
Overview

- School Programs at the OSC
- Goal of TIP
- Interactive WhiteBoards (IWB)
- Audience Response Systems (ARS)
- Example of ARS in OSC Educational Programs
- Evaluation

Who are you?

1. Administrator
2. Curator
3. Program developer
4. Teacher/Educator
5. Other



OSC School Programs

- Over 45 covering most strands across K-12
- Full day DNA Fingerprinting workshop
- 90 minute workshops
- 45 minute Primary workshops
- 45 minute Studio and Auditorium programs
- Over 130K students in programs/year
- About 220K student visits to OSC

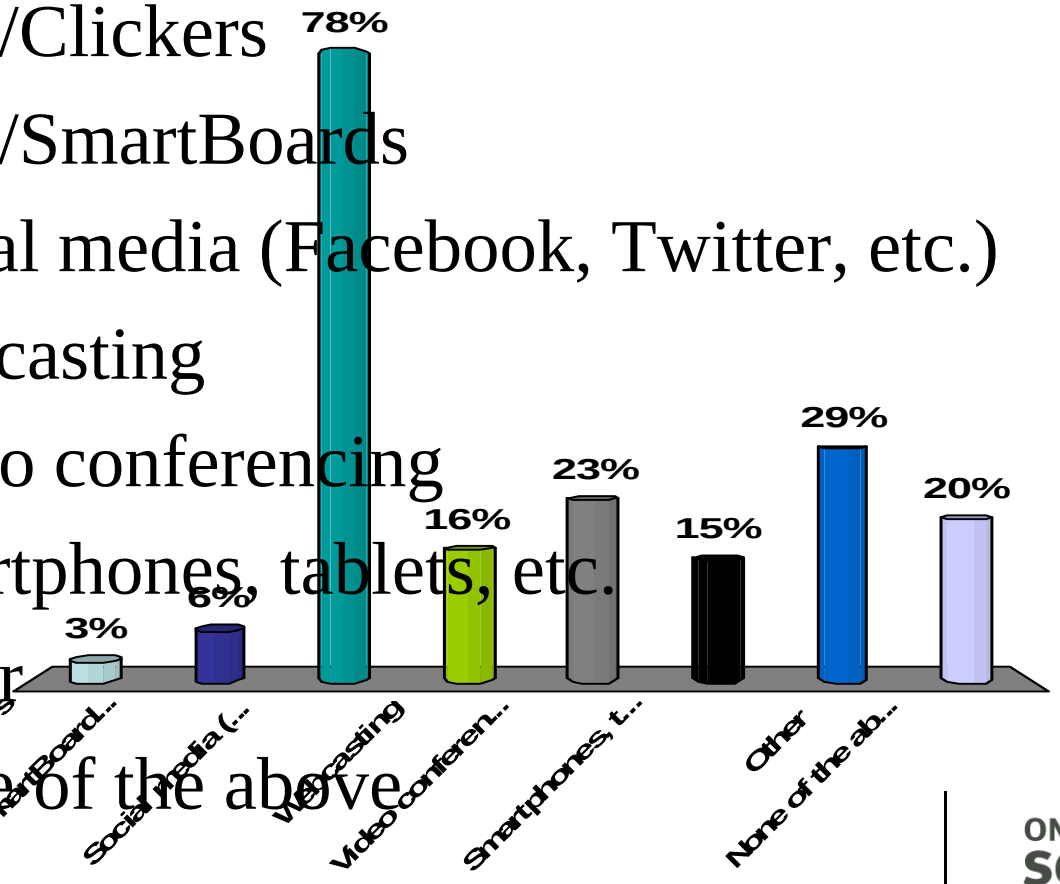
Goal of TIP

Increase engagement in our studio and auditorium school programs through the use of technologies, such as:

- Interactive Whiteboards (IWB)
- Audience Response Systems (ARS or ‘clickers’)

What technologies are you currently using?
(select all that apply)

1. ARS/Clickers
2. IWB/SmartBoards
3. Social media (Facebook, Twitter, etc.)
4. Webcasting
5. Video conferencing
6. Smartphones, tablets, etc.
7. Other
8. None of the above



What technologies are you considering?

(select all that apply)

1. ARS/Clickers
2. IWB/SmartBoards
3. Social media (Facebook, Twitter, etc.)
4. Webcasting
5. Video conferencing
6. Smartphones, tablets, etc.
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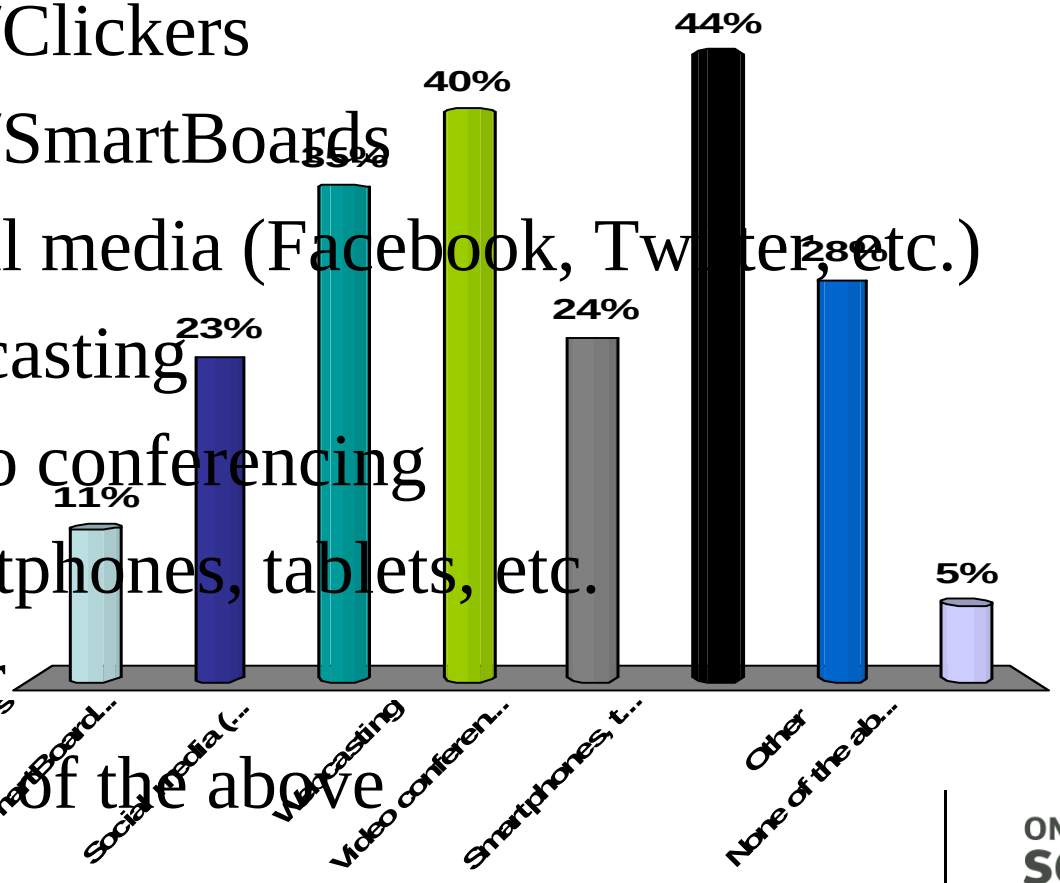


IWBs (SmartBoards)

Drawbacks:

- Limited capabilities for large audiences.
- Single user, single click.
- Expensive to equip all spaces.
- Portable boards are a resource issue.

IWBs (SmartBoards)

Positives:

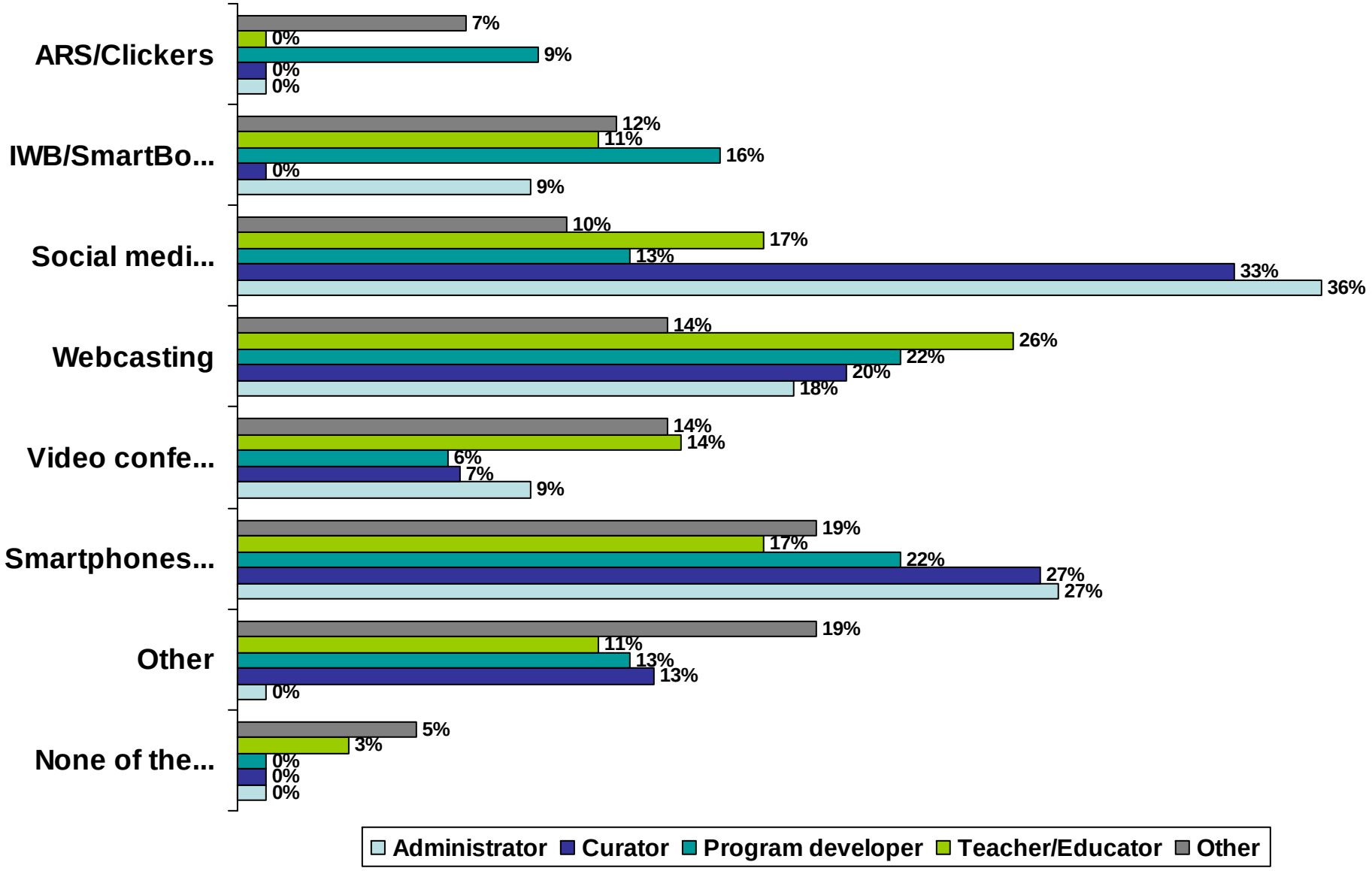
- Could be useful for workshop style programs.
- Ability to capture interaction
- Other resources (eg. Smart Technologies Notebook software).
- Compelling to watch – helps engage with content on the screen.
- Future multi-touch and gesture capabilities are intriguing.

Capabilities of Clickers

Turning Technologies ARS

- Imbedded in PowerPoint.
- Vote on a questions (can have multiple responses).
- Can create demographics.
- Comparison between different questions.
- Data can be extracted to Excel and analyzed.

What technologies are you considering? (select all that apply)



Guideline for types of clicker questions

- Fact
- Opinion
- Prediction
- Conceptual
- Action
- Out of the box

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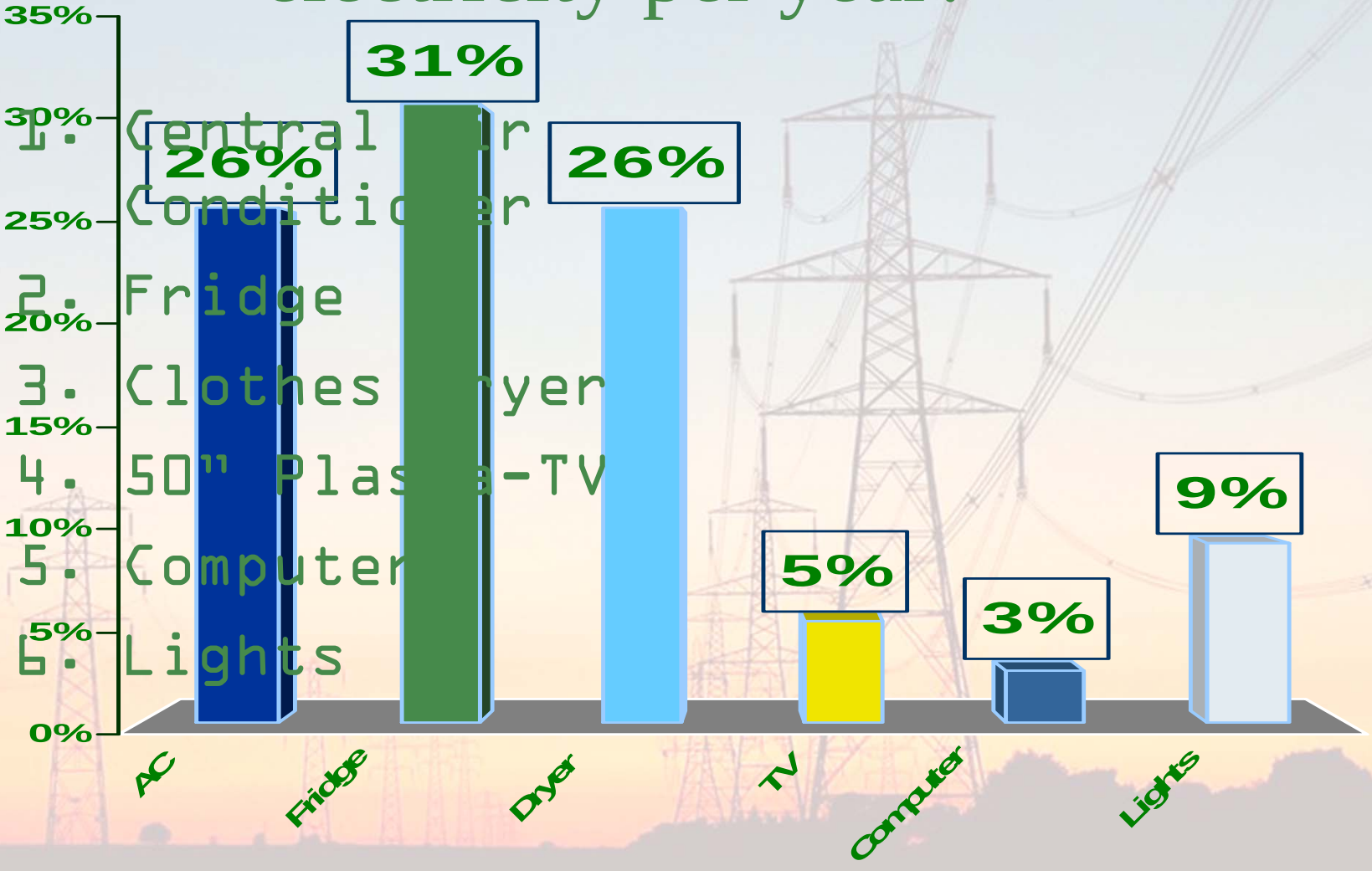
Electricity

Which device uses the most electricity per year?



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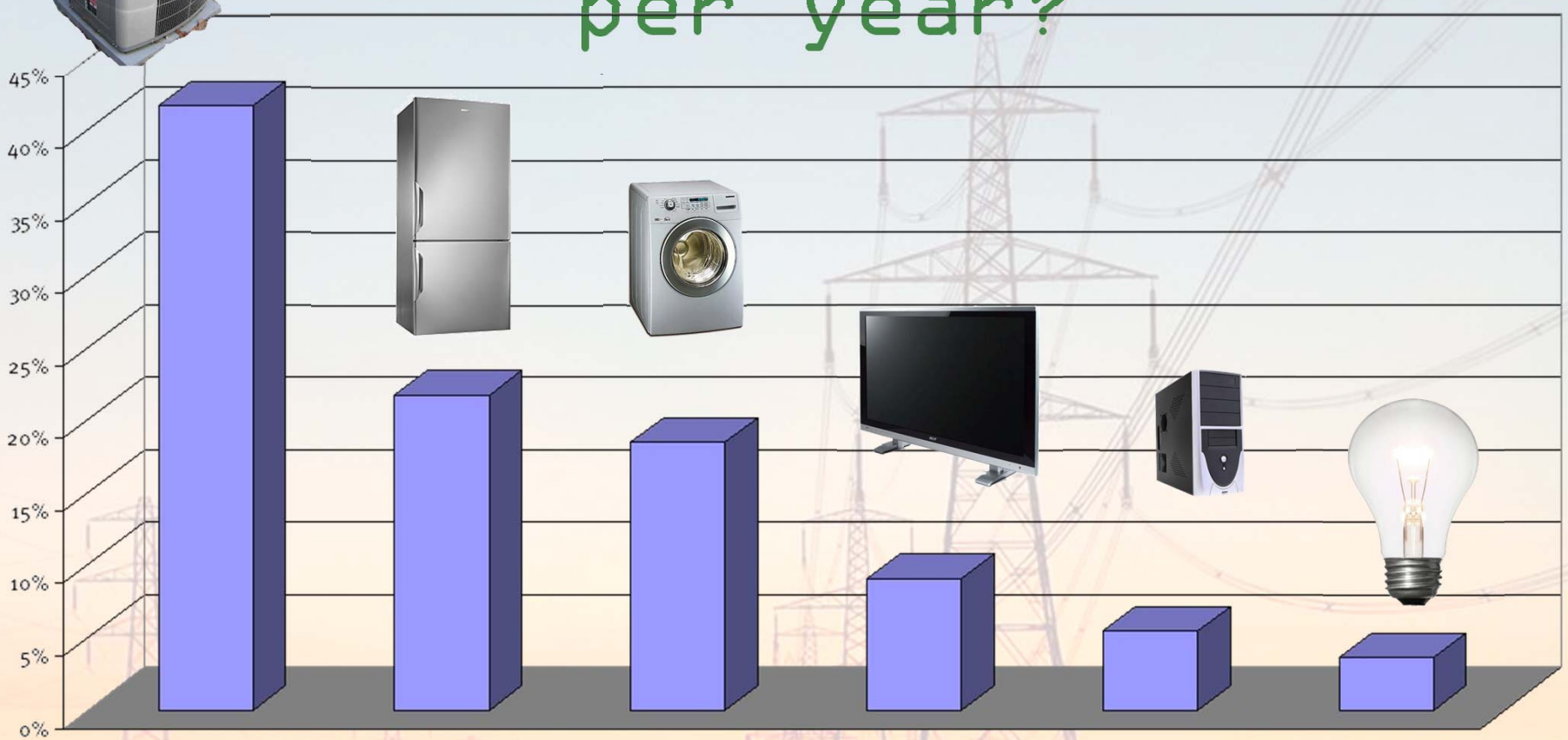

Source: London Hydro

Guideline for types of clicker questions

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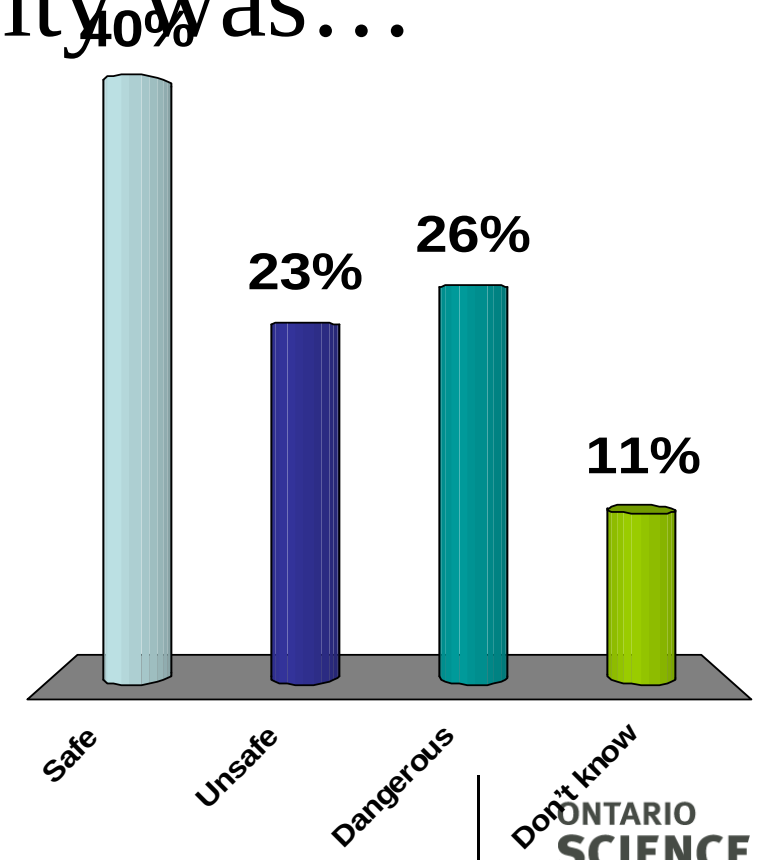
Before the Japan earthquake I thought that using nuclear power to produce electricity was…

1. Safe
2. Unsafe
3. Dangerous
4. Don’t know



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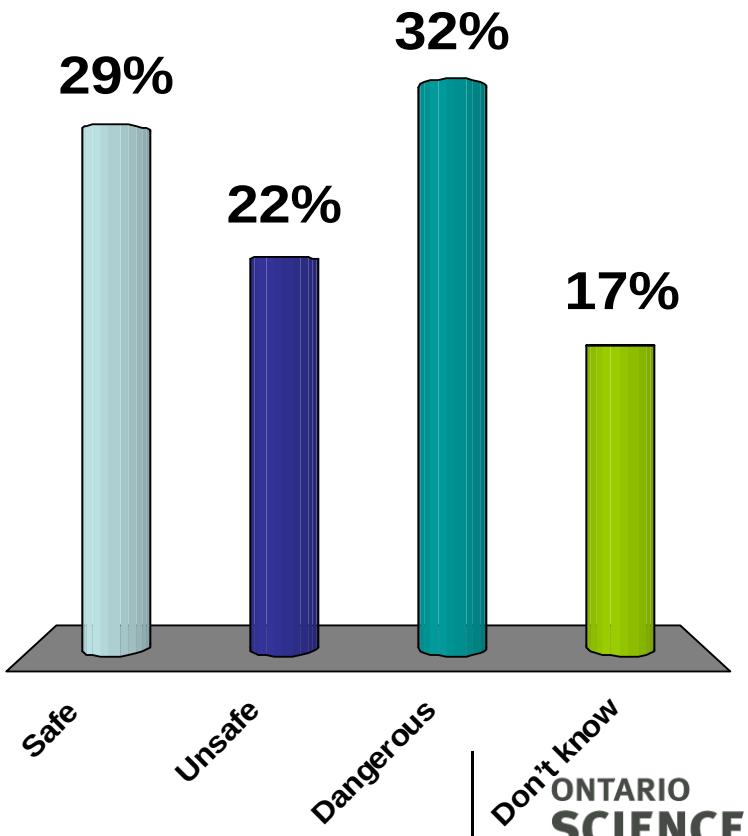
NOW, I think that using nuclear power to produce electricity is…

1. Safe
2. Unsafe
3. Dangerous
4. Don’t know



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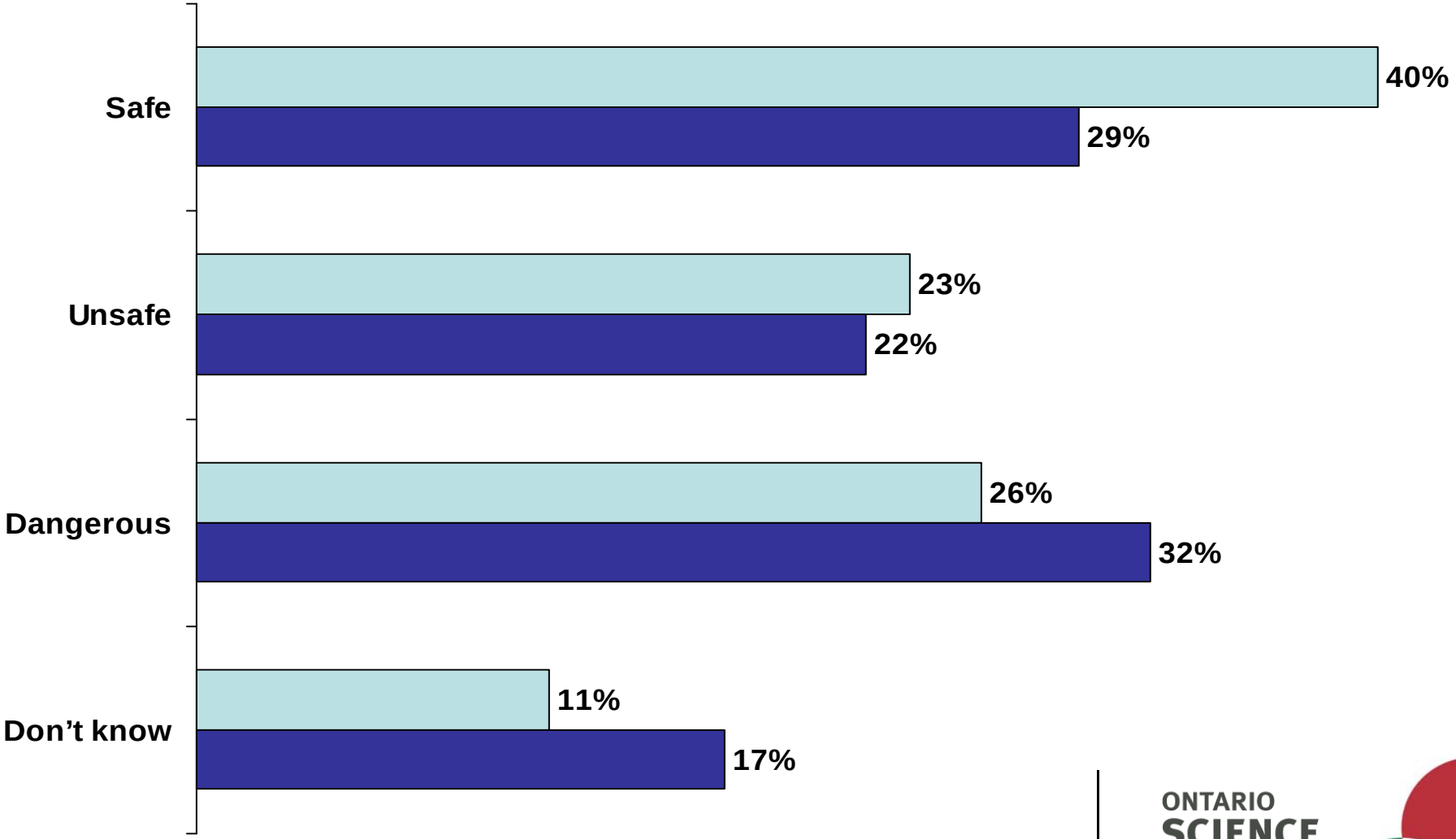

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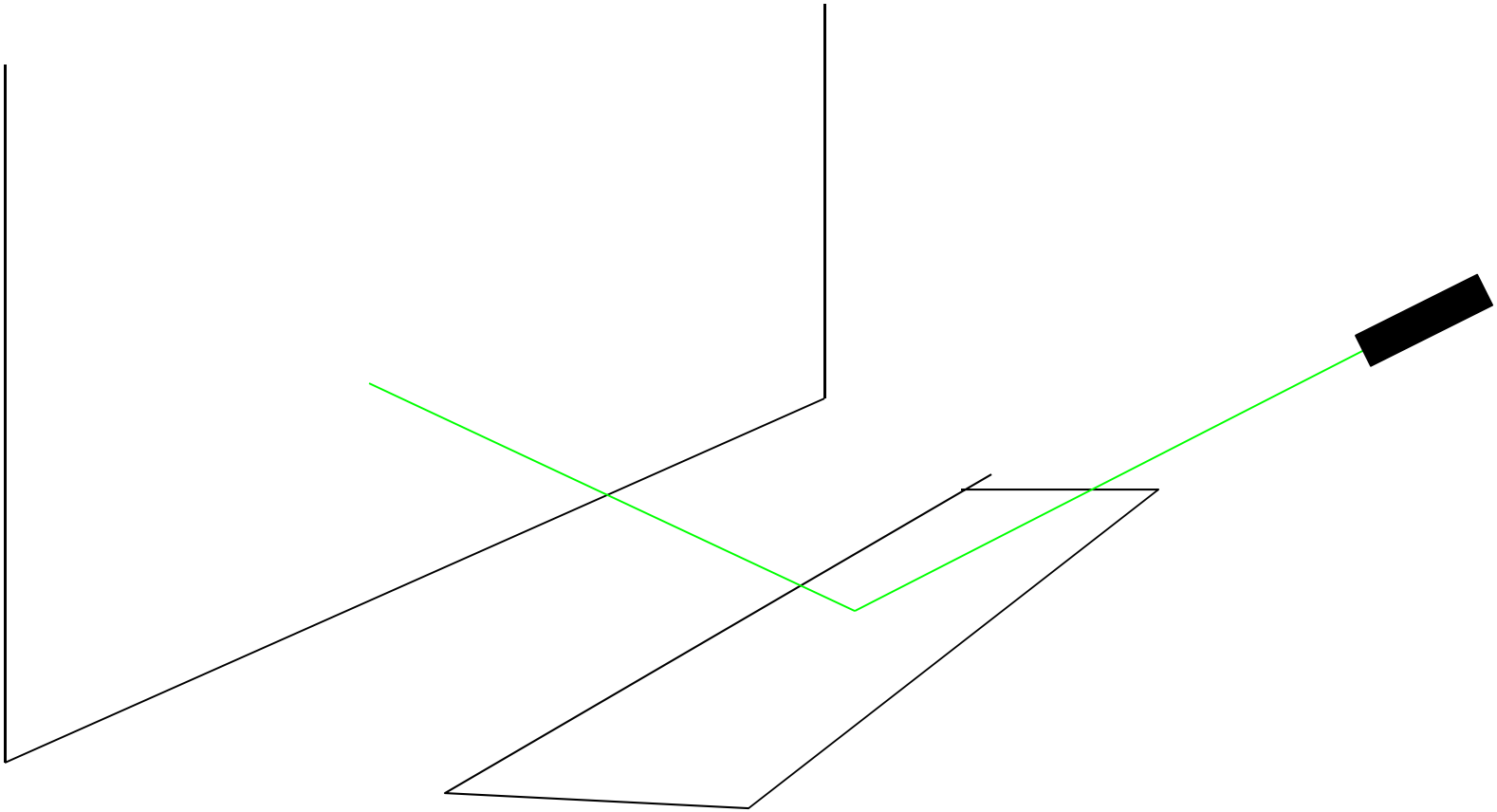
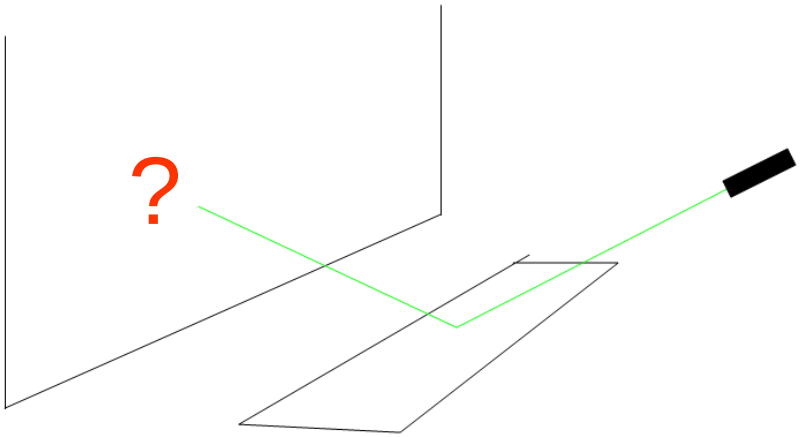
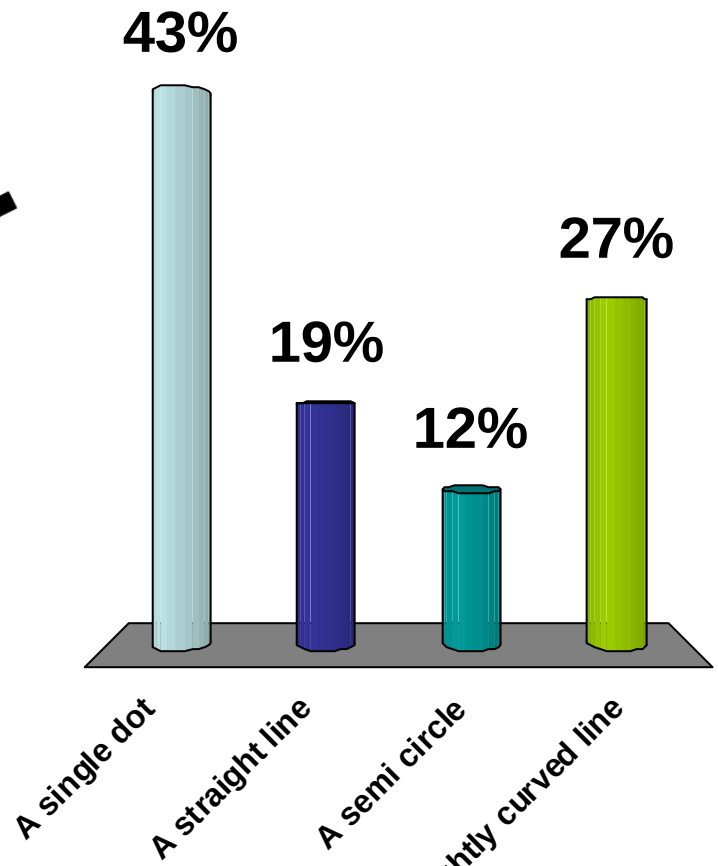


What shape will the laser's reflection on the wall be, when pointed at an angle at the brushed steel?



1. A single dot
2. A straight line
3. A semi circle
4. A slightly curved line



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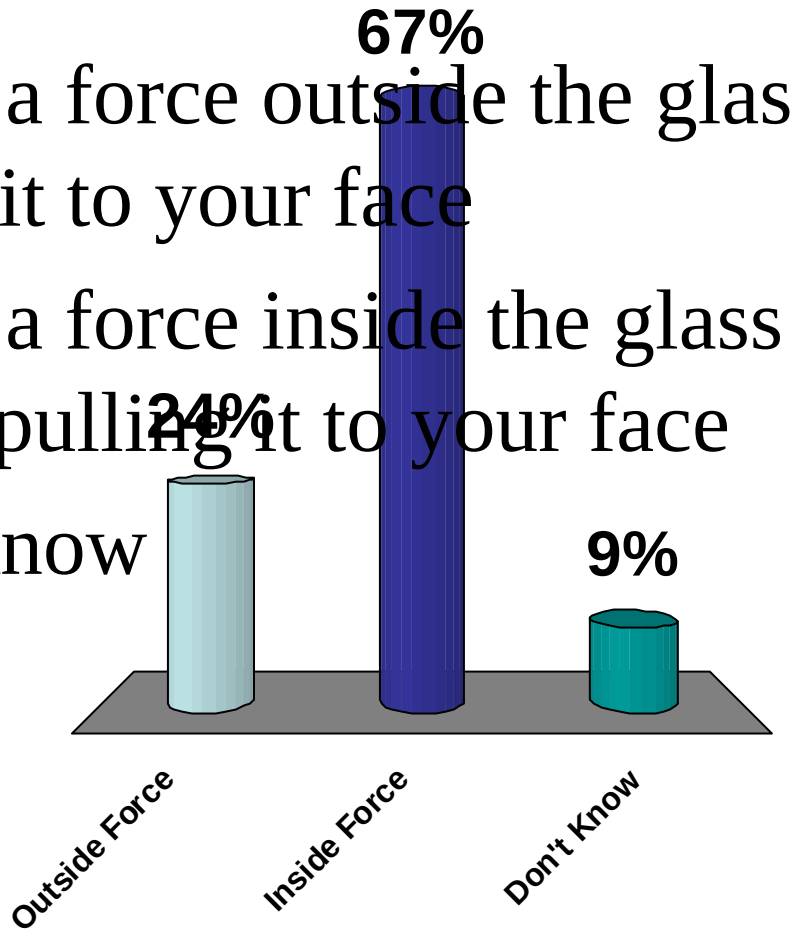
If you suck a glass onto your face, the glass stays there because:

1. There is a force outside the glass pushing it to your face
2. There is a force inside the glass holding/pulling it to your face
3. I don't know



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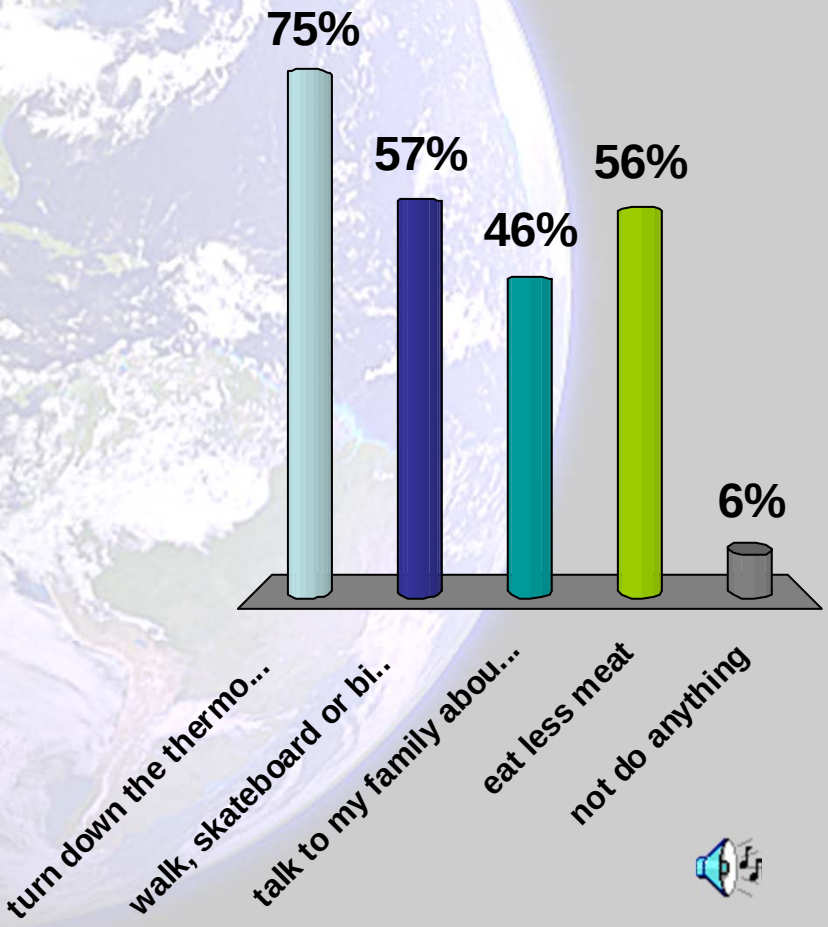
Climate Change

I will…

1. turn down the thermostat in the winter
2. walk, skateboard or bike to school
3. talk to my family about things we can do
4. eat less meat
5. not do anything

Choose up to 3



…to reduce greenhouse gases

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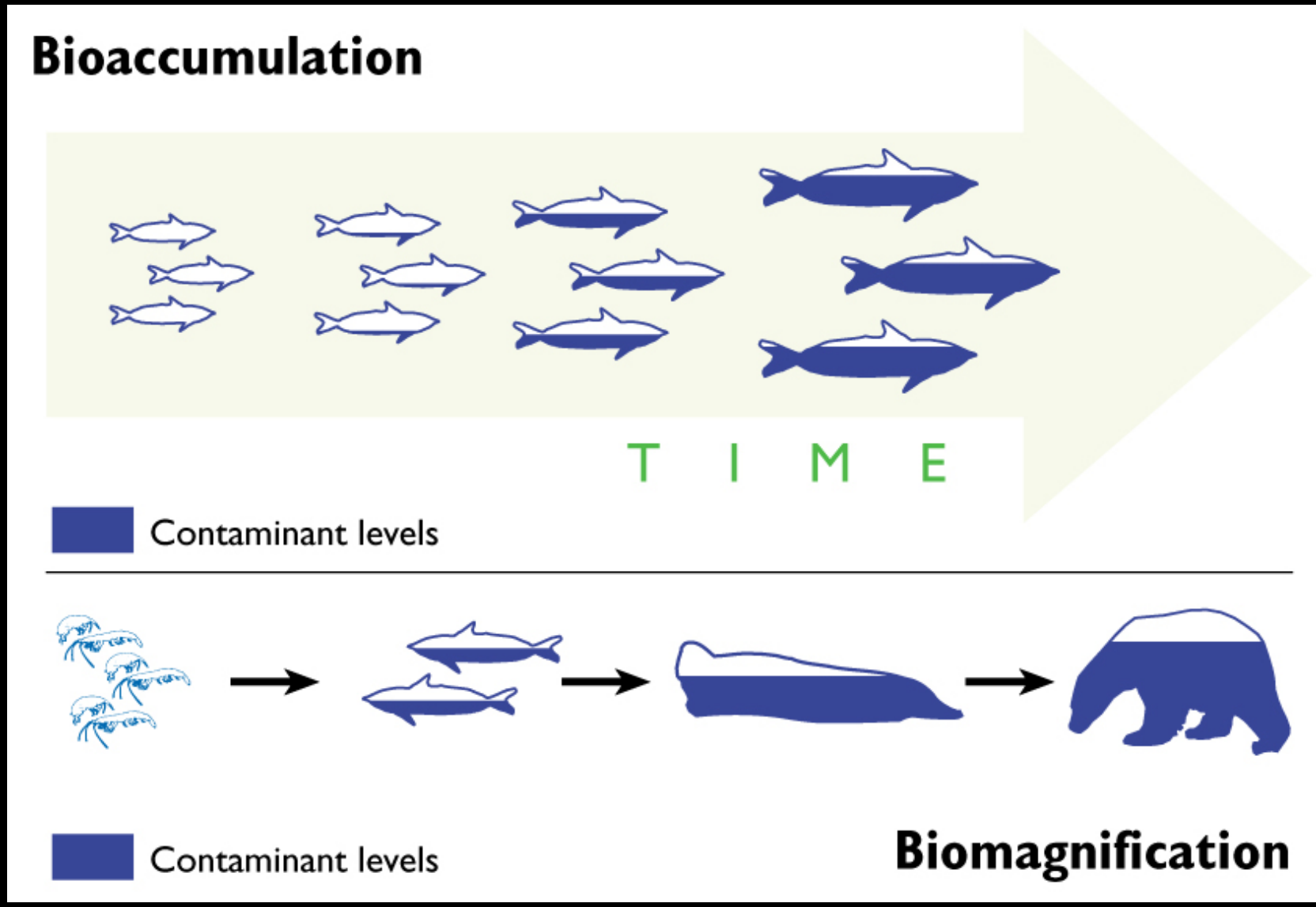
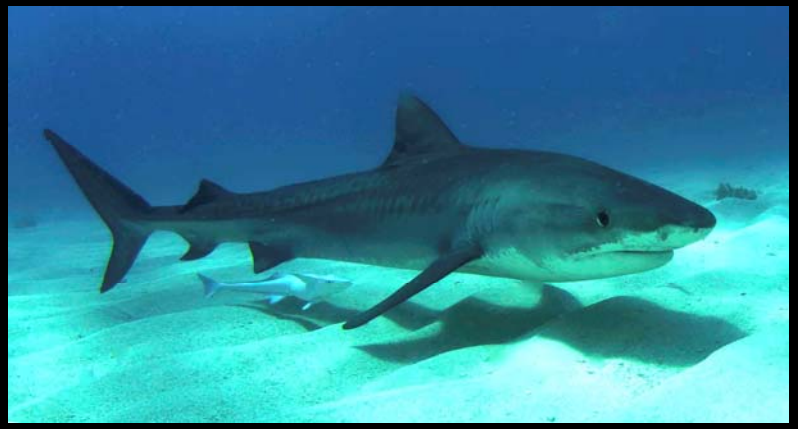


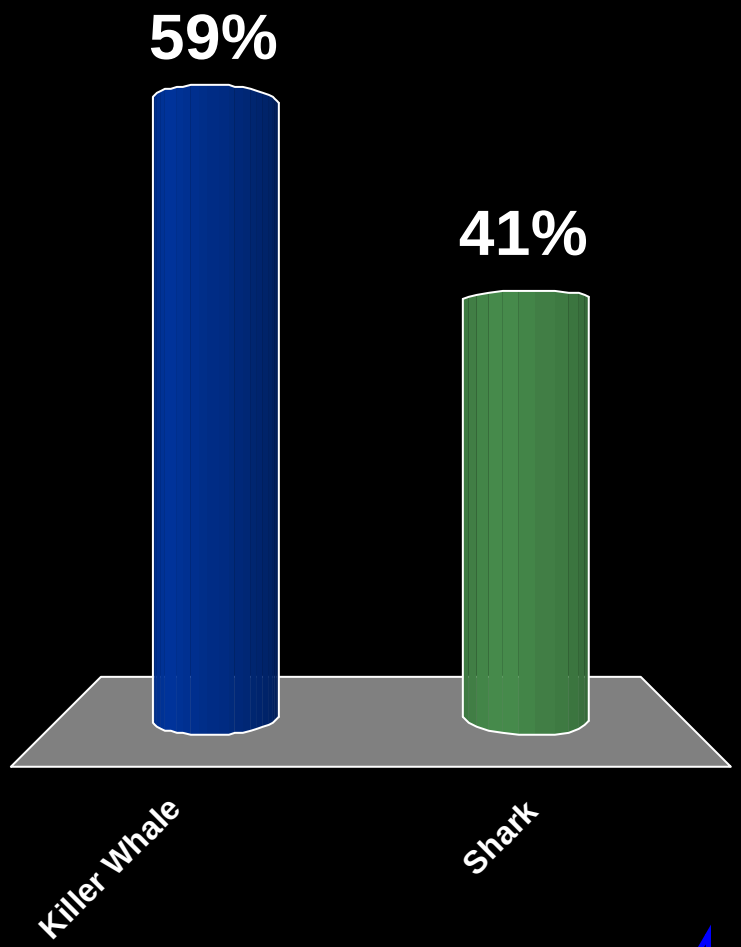
From WWF webpage

The Bioaccumulation Game
Which predator will you be?

1. Killer Whale



2. Pacific Sleeper Shark



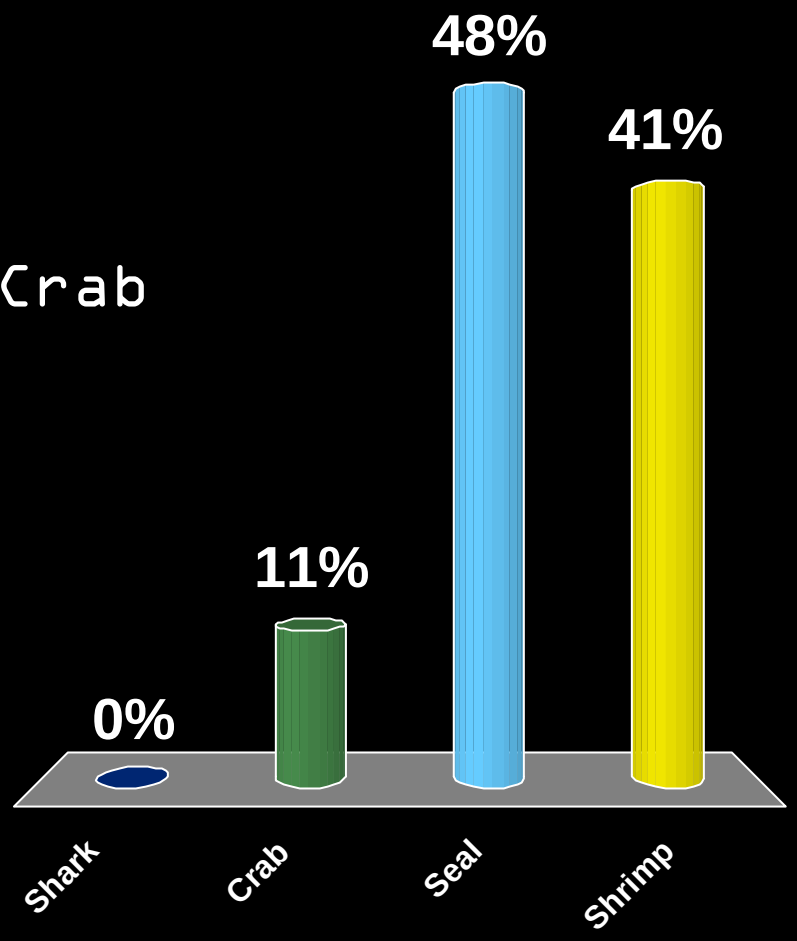
What would you eat?

1. Shark

2. Hermit Crab

3. Fur Seal

4. Shrimp



The shark and fur seal both contain higher levels of mercury.

Accumulated Mercury Levels (fewer = better)

5.12	Killer Whale
4.4	Shark

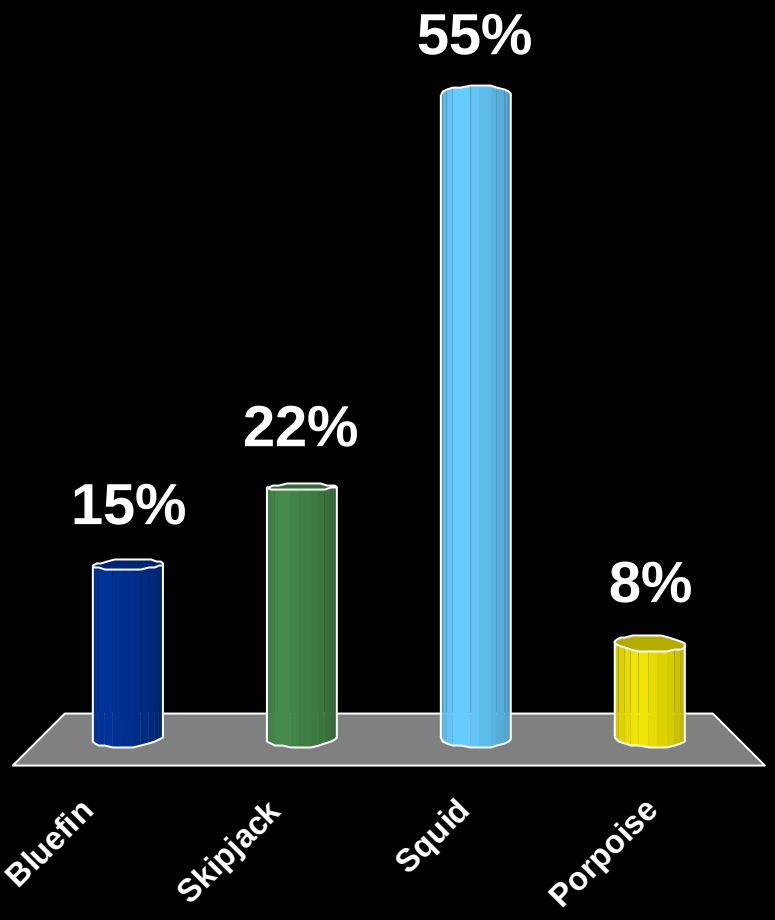
What would you eat?

1. Bluefin Tuna

2. Skipjack Tuna

3. Squid

4. Harbour Porpoise



uefin tuna and porpoise contain higher mercury le
ou get 10 mercury points if you picked one of them

Accumulated Mercury Levels
(fewer = better)

7.97 Killer Whale

6.19 Shark

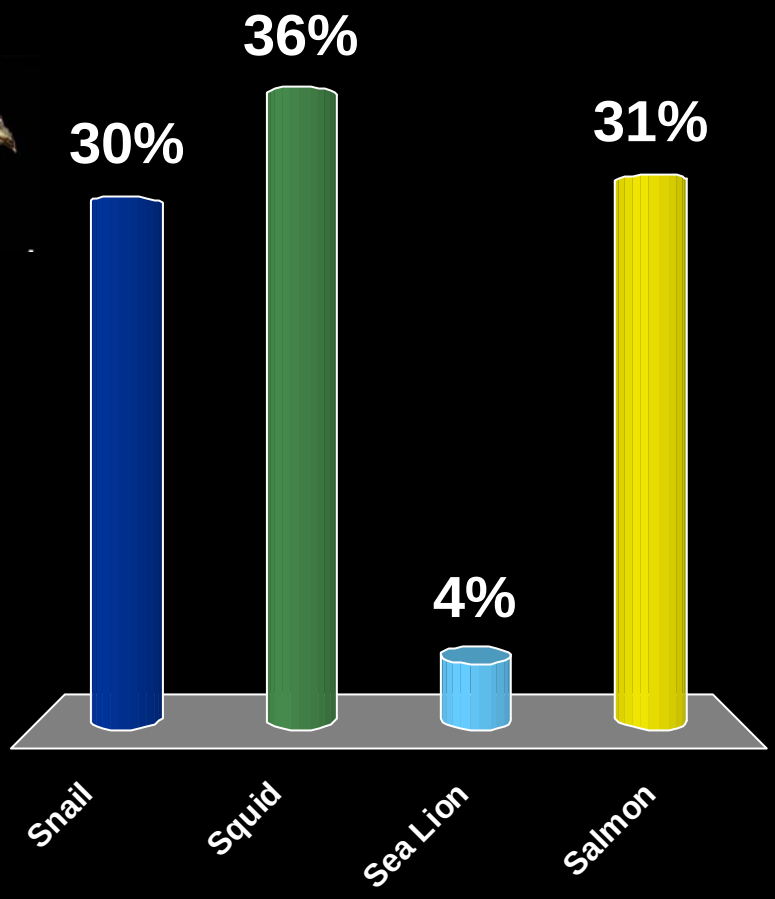
What would you eat?

1. Snail

2. Giant Squid

3. Sea Lion

4. Sockeye Salmon



iant squid and sea lion contain higher mercury le
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Accumulated Mercury Levels
(fewer = better)

11.93 Killer Whale

10.67 Shark

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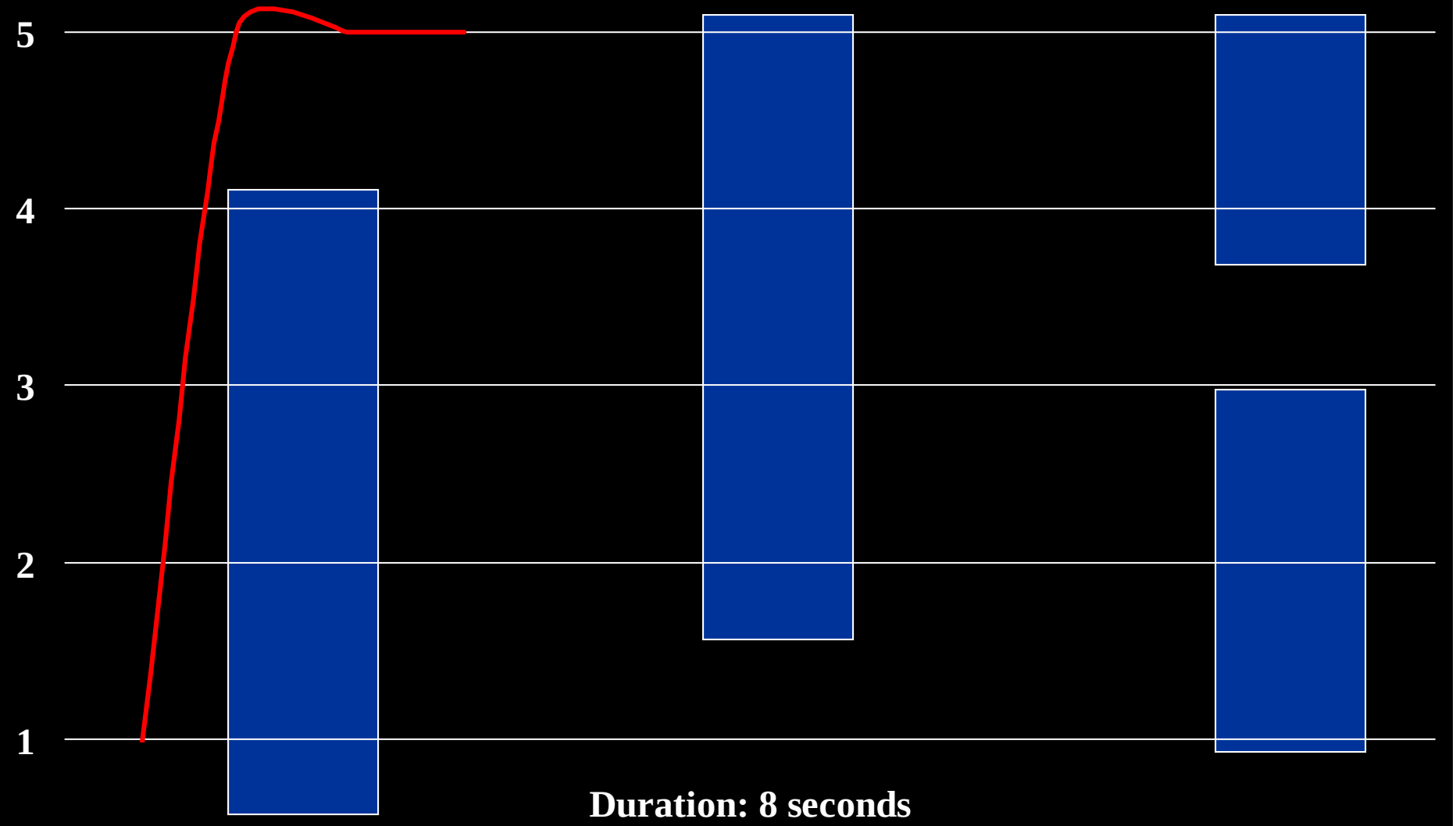
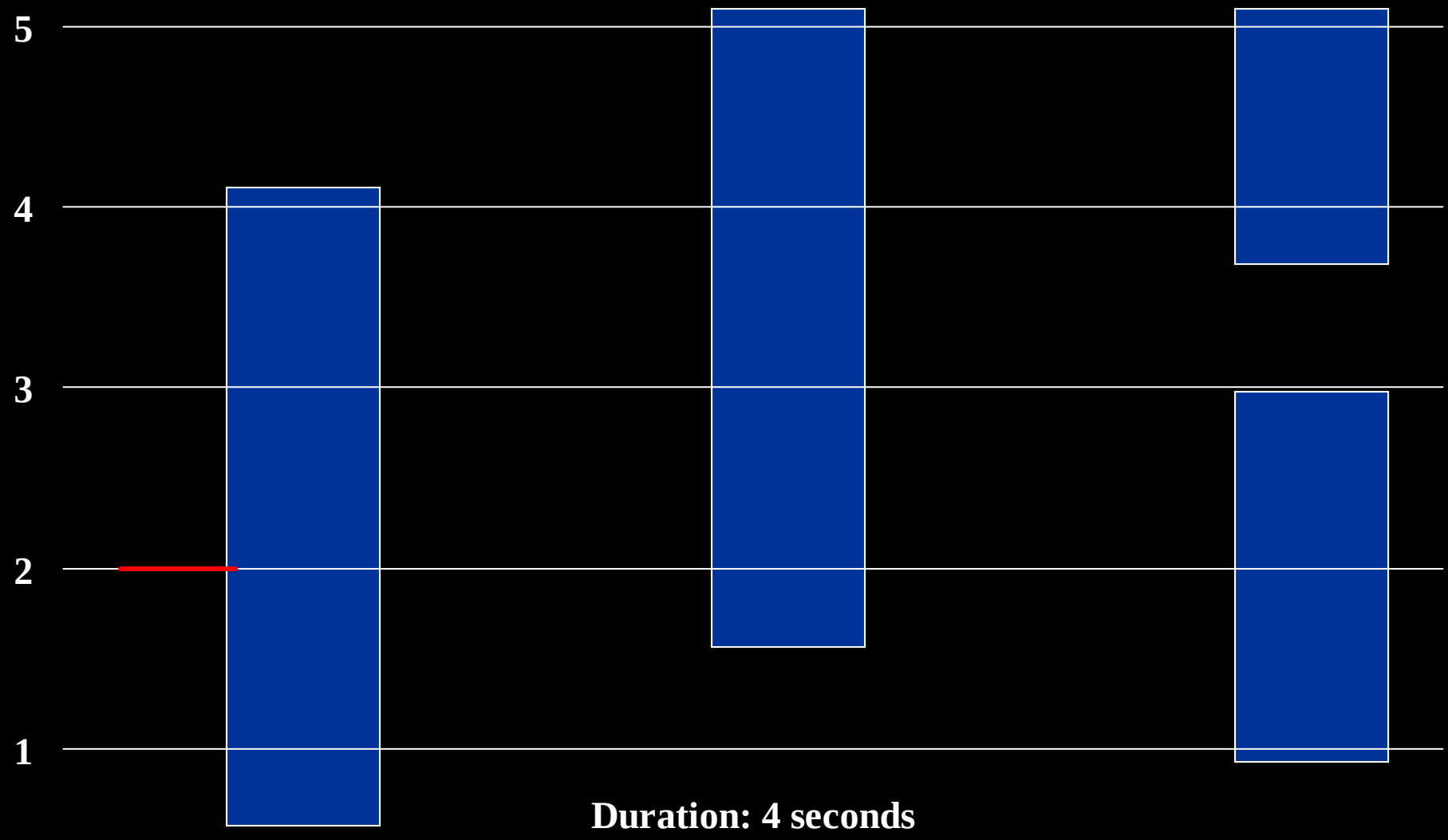
Moment to moment function

Every 2 seconds the average response will be plotted in red.



Your goal: avoid the obstacles!

(cooperate pressing numbers 1-5 to steer the red line)



Please return your clicker

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Clicker Summary

- Introduced into 9 programs with 1 more on line
- Considering another 5 for next year
- A new resource for new program development

Clicker Summary

Challenges

- Distribution and collection issues
  - Time away from demos
  - Ensuring all clickers are returned
- Staff reluctance
- Resource allocation
  - Multiple spaces
  - Clicker set for each space is expensive

Clicker Summary

Advantages

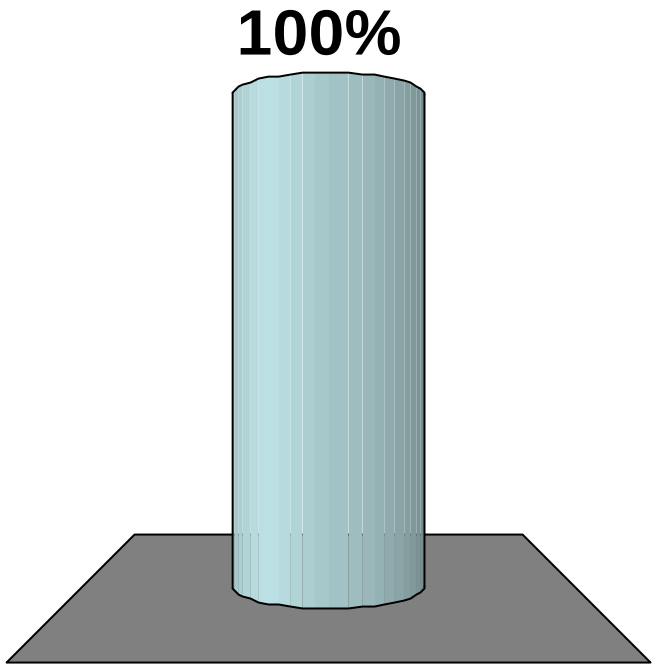
- Increased student engagement
  - Anecdotal and observational
- Provokes discussion amongst students
- Great evaluation tool
- Useful for other applications

TIP Evaluation Plan

- Teacher opinions (online survey)
- Student feedback (in program survey)
- Increase in student understanding

Enter question text...

1. Enter answer text...



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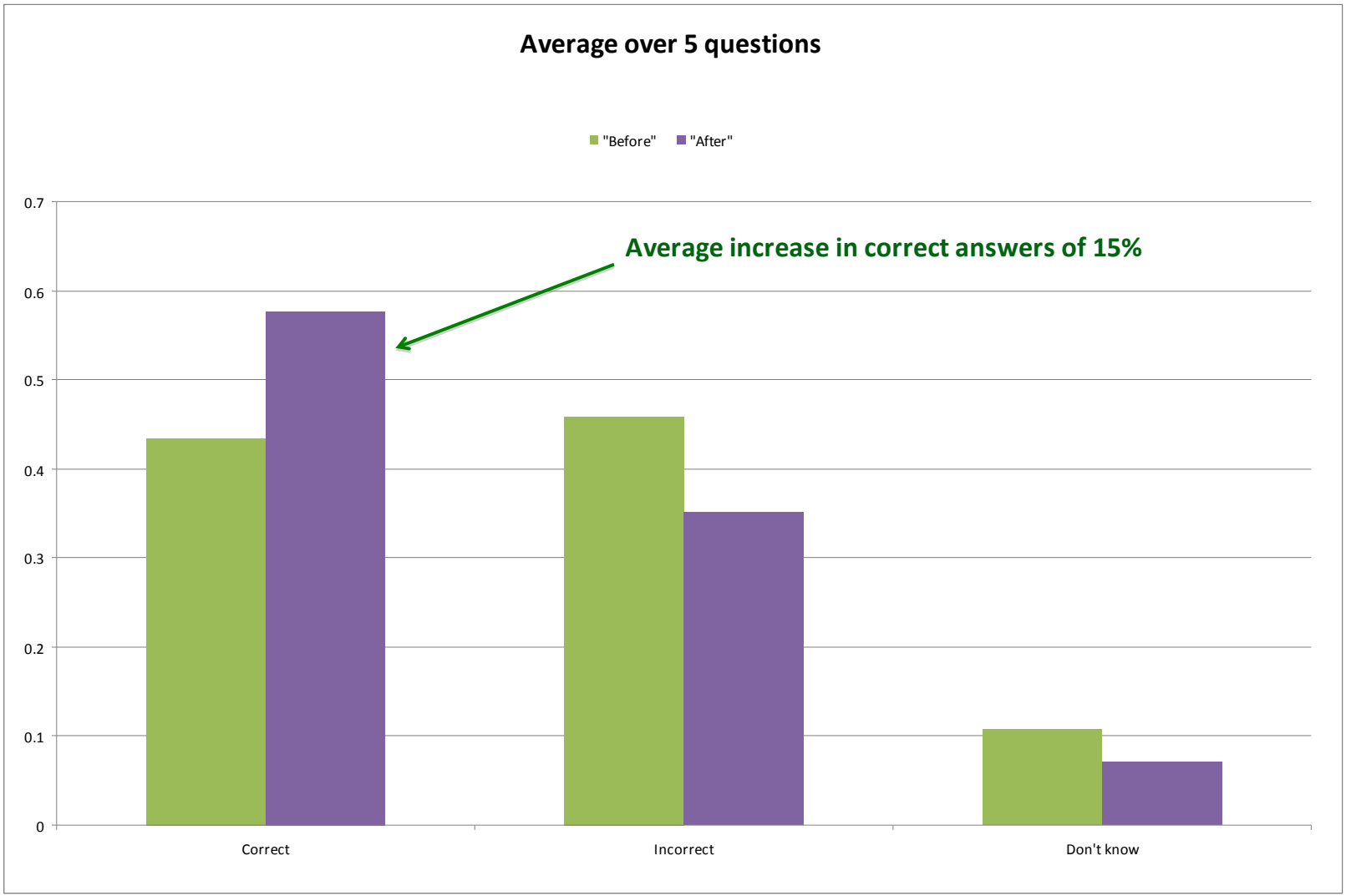
Increased understanding

- Ask 5 content questions before and after a program without clickers.
  - Look at differential
- Implement clickers into program
- Ask same 5 content questions before and after the program with clickers.
- Compare the differential
- Also comparing confidence



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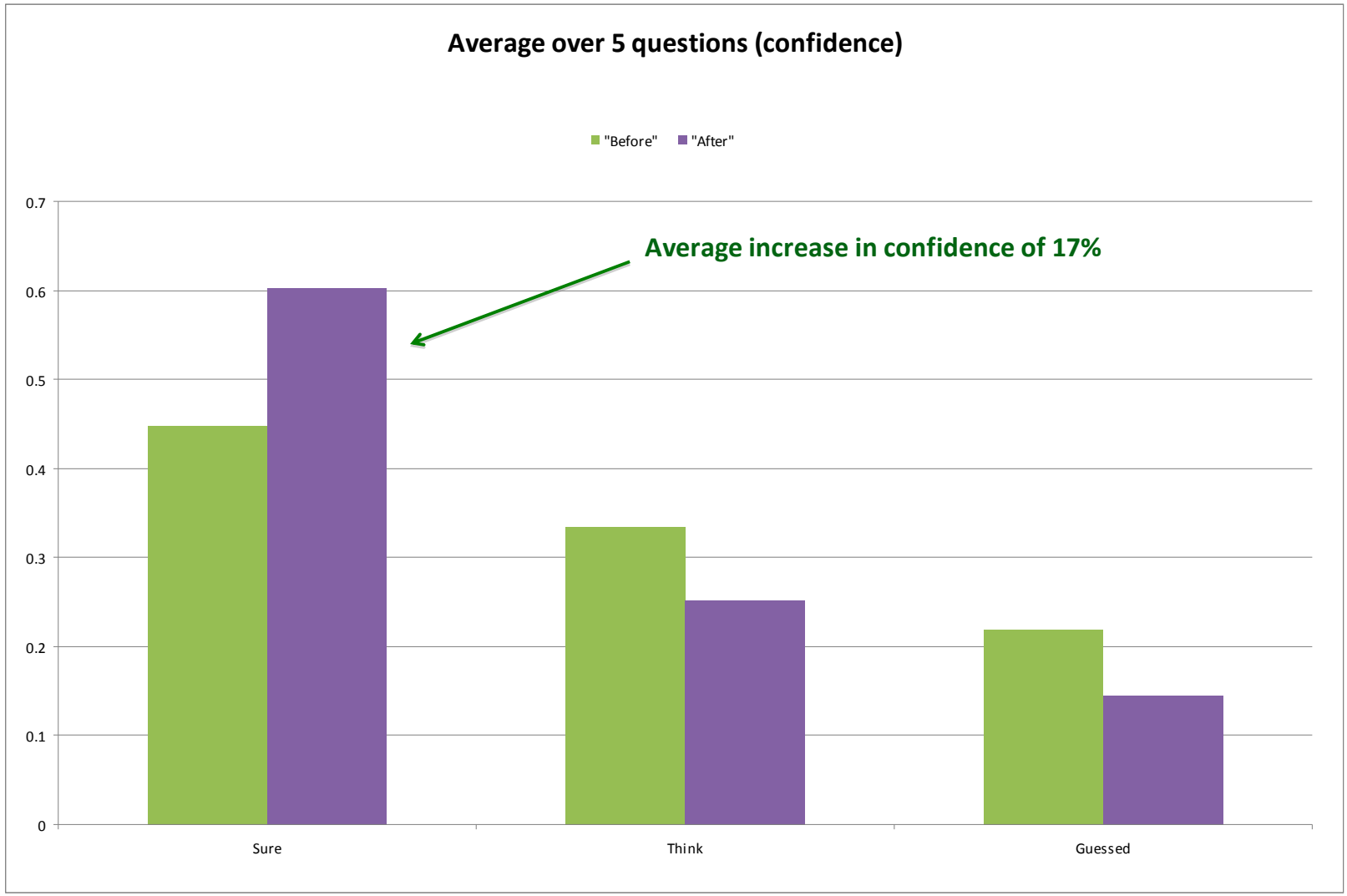

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Future considerations

- Off site participation (voting using Smartphones or Internet)
- Smartphones – redefine educational program
- Wiimotes and multi-touch IWB

Thank you.

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