
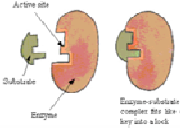

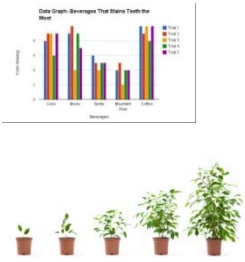


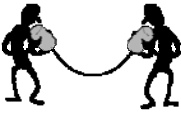


What does it Sound Like to USE the Science and Engineering Practices?

| <p>Science and Engineering Practice 1 Asking Questions and Defining Problems</p>  <p>I notice... I observe....</p> <p>I wonder.... What would happen if..? Why is....? How do you think....?</p> | <p>Science and Engineering Practice 2 Developing and Using Models</p>  <p>I think.... because.... If happens, then..... I think this means..... When.....</p> <p>I notice... I observe..... I wonder.....</p> | <p>Science and Engineering Practice 3 Planning and Carrying Out Investigations</p>  <p>How can we test our idea? What will we observe or measure? How will we collect our data? What do we need to control? What would we do differently next time? I think..... because.....</p> <p>First, Second, Third, Finally,</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|--------------------------|-----------------------|---|-----|-----|---|-----|-----|---|-----|------|---|-----|------|---|-----|------|---|-----|------|---|-----|------|---|-----|------|---|-----|------|---|-----|------|----|-----|------|---|
| <p>Science and Engineering Practice 4 Analyzing and Interpreting Data</p>  <p>I notice.... I observe.... ___ is the same as ____. ___ is different than ____. ___ is more than ____. ___ is less than ____. I think this means ____. The data show ____.</p> | <p>Science and Engineering Practice 5 Using Mathematics and Computational Thinking</p> <table border="1" data-bbox="756 641 924 820"> <thead> <tr> <th>trial number</th> <th>force (N) without helmet</th> <th>force (N) with helmet</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.0</td><td>0.0</td></tr> <tr><td>1</td><td>8.9</td><td>8.9</td></tr> <tr><td>2</td><td>0.0</td><td>17.8</td></tr> <tr><td>3</td><td>0.0</td><td>26.7</td></tr> <tr><td>4</td><td>0.0</td><td>35.6</td></tr> <tr><td>5</td><td>0.0</td><td>44.4</td></tr> <tr><td>6</td><td>0.0</td><td>53.3</td></tr> <tr><td>7</td><td>0.0</td><td>62.2</td></tr> <tr><td>8</td><td>0.0</td><td>71.1</td></tr> <tr><td>9</td><td>0.0</td><td>80.0</td></tr> <tr><td>10</td><td>0.0</td><td>88.9</td></tr> </tbody> </table> <p>I notice.... I observe.... ___ is the same as ____. ___ is different than ____. ___ is more than ____. ___ is less than ____. What patterns do we see? How do we make sense of these numbers, shapes, tables, diagrams?</p> | trial number | force (N) without helmet | force (N) with helmet | 0 | 0.0 | 0.0 | 1 | 8.9 | 8.9 | 2 | 0.0 | 17.8 | 3 | 0.0 | 26.7 | 4 | 0.0 | 35.6 | 5 | 0.0 | 44.4 | 6 | 0.0 | 53.3 | 7 | 0.0 | 62.2 | 8 | 0.0 | 71.1 | 9 | 0.0 | 80.0 | 10 | 0.0 | 88.9 | <p>Science and Engineering Practice 6 Constructing Explanations / Designing Solutions</p>  <p>This is what you call: "Key" Evidence!</p> <p>I think.... because... I claim... because.... This evidence supports the claim because..... The data show.....</p> <p>For example..... Also, Therefore,</p> <p>In conclusion.....</p> |
| trial number | force (N) without helmet | force (N) with helmet | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0.0 | 0.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 8.9 | 8.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 0.0 | 17.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 0.0 | 26.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 0.0 | 35.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 0.0 | 44.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 0.0 | 53.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 0.0 | 62.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 0.0 | 71.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 0.0 | 80.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 0.0 | 88.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Science and Engineering Practice 7 Engaging in Argument from Evidence</p>  <p>So, you are saying..... Can you say more about? I agree with because..... I disagree withbecause..... I'm still not sure about</p> <p>I observe..... I notice..... I wonder..... What evidence supports that idea?</p> | | <p>Science and Engineering Practice 8 Obtaining, Evaluating, and Communicating Information</p>  <p>Your idea is the same/different as mine because.... The idea from the text is the same/different because.. I used to think...., but now I think.... I want to build on your idea..... Are you saying.....? I'm confused about.....?</p> <p>I observe.... I notice..... I wonder.....</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Asking Questions and Defining Problems



I notice...

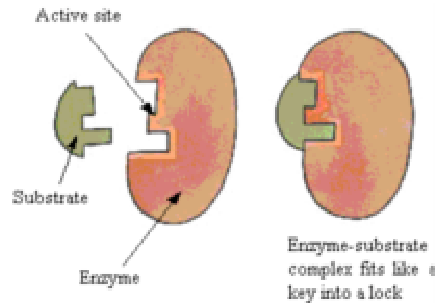
I observe....

I wonder....

What would happen if....?

Science and Engineering Practice 1

Developing and Using



Models

I think.... because....

Ifhappens, then.....

I think this means.....

I observe..... I wonder.....

Science and Engineering Practice 2

Planning and Carrying Out Investigations



First,
Second,
Third,
Finally,

How can we test our idea?
What will we observe or measure?
How will we collect our data?
What do we need to control?
What would we do differently next time?

Science and Engineering
Practice 3

Analyzing and Interpreting Data

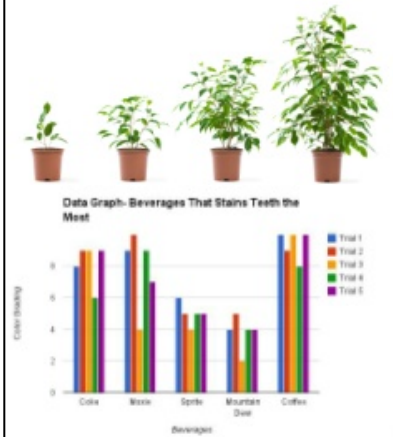
___ is the same as ____.

___ is different than _.

I think this means.....

The data show _____.

I observe.....



Science and Engineering Practice 4

Using Mathematics and Computational Thinking

| trial number | force (N) without label | force (N) with label |
|--------------|-------------------------|----------------------|
| 0 | 0.0 | 0.0 |
| 1 | 0.0 | 0.8 |
| 2 | 0.0 | 1.5 |
| 3 | 0.0 | 2.7 |
| 4 | 0.0 | 3.5 |
| 5 | 0.0 | 4.4 |
| 6 | 0.0 | 5.3 |
| 7 | 0.0 | 6.2 |
| 8 | 0.0 | 7.1 |
| 9 | 0.0 | 8.0 |
| 10 | 0.0 | 8.9 |

___ is more than ___.

___ is less than ___.

What patterns do we see?

How do we make sense of these numbers, shapes, tables, diagrams?

Science and Engineering Practice 5

Constructing Explanations and Designing Solutions



I think.... because...

I claim... because....

The evidence show....

For example.....

Also, Therefore,

In conclusion.....

Engaging in Argument from Evidence



So, you are saying.....

Can you say more about ...?

I agree with because.....

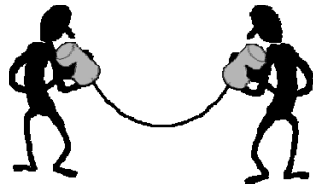
I disagree withbecause...

I'm still not sure about

What evidence supports that idea?

Science and Engineering Practice 7

Obtaining, Evaluating, and Communicating



Information

That idea is the same/different as

The idea from the text is the
same/different because..

I used to think...., but now I think.....

I want to build on your idea.....

Are you saying.....?

