

NOTES- SCIENCE VS. ENGINEERING

<p>Scientific Method vs. Engineering Design Process</p>	<ul style="list-style-type: none"> Both scientists and engineers contribute to the world of _____ knowledge, but in _____ ways.
<p><u>Scientists.....</u></p>	<ul style="list-style-type: none"> use the scientific method to make _____ explanations and predictions about the world asks a question and develops an _____ to answer that question study how _____ works
<p>The Scientific Method</p>	<ul style="list-style-type: none"> <u>Purpose</u> <ul style="list-style-type: none"> State the _____; ask a question <u>Research</u> <ul style="list-style-type: none"> Find out about the _____ <u>Hypothesis</u> <ul style="list-style-type: none"> _____ the outcome of the problem <u>Experiment</u> <ul style="list-style-type: none"> Plan a procedure to _____ the hypothesis. <u>Data/Analysis</u> <ul style="list-style-type: none"> _____ the results of the experiment <u>Conclusion</u> <ul style="list-style-type: none"> _____ the hypothesis to the experiment conclusion
<p>Variables</p>	<p>Variables are anything that can be _____ within an experiment.</p> <p>There are ___ types of variables....</p>
<p>Types of Variables</p>	<p>Independent (_____) Variable: The variable that is changed/tested by the scientist; the ' _____ ' variable.</p> <p>Dependent (_____) Variable: The variable that changes because of what the scientist changes –" _____ " (what is measured) quantitative and qualitative observations and data.</p>
<p>Control Group</p>	<p>The control is the part of the experiment that is _____ changed and is used to _____ the experimental results to.</p>

HYPOTHESES

"IF _____, THEN _____ BECAUSE _____."

[Independent Variable]

[Dependent Variable]

[Reason]

The variable that is changed by the scientist.

"I CHANGE"

The variable that changes because of what the scientist changes.

"DATA"

Explain why you think this will happen.

<p>Types of Descriptions</p>	<p>Qualitative descriptions describe an object's _____ without using specific values.</p> <p>There are NO numbers _____ in qualitative _____.</p> <p>Ex: _____</p> <p>Quantitative descriptions _____ an object using specific _____.</p> <p>There are _____ involved in quantitative _____.</p> <p>Ex: _____</p>
<p>Engineers...</p>	<ul style="list-style-type: none"> ■ use the engineering _____ process to create _____ to problems. ■ identify a specific _____: Who need(s) what because why? And then, he or she creates a solution that meets the need. ■ _____ new things, such as products, websites, environments, and experiences.
<p>Engineering Design Process</p>	<ul style="list-style-type: none"> ■ Ask <ul style="list-style-type: none"> ■ define the _____, conduct _____ ■ Imagine <ul style="list-style-type: none"> ■ _____ ideas, possible solutions ■ Plan <ul style="list-style-type: none"> ■ draw a model or build a _____, make a materials list ■ Create <ul style="list-style-type: none"> ■ follow a plan to _____ the product, _____ the product, gather information/data ■ Improve <ul style="list-style-type: none"> ■ evaluate results, _____ the design, _____ and re-evaluate