

Student Language Scoring Guide High School

As of July 1, 2008, one or more work samples or local performance assessments are required for grades 3-8 and High School according to Board adopted OAR 581-022-0615.

SCIENTIFIC INQUIRY

FORMING A QUESTION OR HYPOTHESIS

- TASK:**
- Describe the background knowledge or preliminary observations that helped your frame your question/hypothesis.
 - Write your idea as a question you want to answer or a hypothesis you want to test
 - Clearly explain your question or hypothesis.

Not There Yet	Meeting the Standard	Exceeding the Standard
<ul style="list-style-type: none"> • Describe background knowledge or preliminary observations, which are incomplete or only partly relate to the investigation. • Write a question or hypothesis that can be investigated, but cannot be directly answered or tested. • Describe the question or hypothesis and background information in an unclear manner. 	<ul style="list-style-type: none"> • Describe background knowledge or preliminary observations that relate to the investigation. • Write a question or hypothesis you can answer or test by doing a scientific investigation and gathering data. • Describe your question or hypothesis and background clearly enough for a reader to guess what kind of investigation will follow. 	<ul style="list-style-type: none"> • Explain the <i>most important</i> background knowledge <i>and show how it relates to your investigation.</i> • Write a question or hypothesis that <i>focuses on scientific relationships.</i> • Describe your question or hypothesis and background clearly so that <i>a reader could predict some of the procedures you will use.</i>

SCIENTIFIC INQUIRY

DESIGNING AN INVESTIGATION

- TASK:**
- Decide what must be done to have a fair test of your question or hypothesis.
 - Keep notes about the procedures you use as you do the investigation.
 - After finishing your investigation, write out the procedures that you actually used.

Not There Yet	Meeting the Standard	Exceeding the Standard
<ul style="list-style-type: none"> • Follow a plan with scientific errors. • Collect <u>some</u> data, but not enough of the right kind to <u>really</u> answer your question or test your hypothesis. • Write out a general plan and <u>some</u> procedures that can be followed. 	<ul style="list-style-type: none"> • Make sure your design is scientifically logical, safe and ethical. • Make sure your design is practical and gives <u>enough of the right kind</u> of data to answer your question or test your hypothesis (i.e., fair test). • Describe organized and logical procedures with enough detail for another person to follow what you did. 	<ul style="list-style-type: none"> • Make sure your design is <i>precise</i> (exactly right on)-<i>use accepted scientific procedures if possible.</i> • Make sure your design gives you <i>enough</i> of the right kind of data to answer your question or test your hypothesis <i>and to explain relationships.</i> • Make sure your procedures are <i>detailed enough for someone to repeat exactly what you did.</i>

For More information, please see the Scientific Inquiry Work Sample requirements FAQ document available online at www.ode.state.or.us/go/ScienceAssessment.

Adapted from the work of Dr. Dave Hamilton, Physics Teacher, Franklin High School, Portland School District, 2003.

SCIENTIFIC INQUIRY**COLLECTING AND PRESENTING DATA**

- TASK:** Design a data table or other format for your measurements and/or observations.
- Carry out your investigation, recording the measurements and observations you need to answer your question or test your hypothesis.
- Transform your data (by doing calculations, reorganizing, making graphs, labeling diagrams, etc.) to help you look for patterns, trends, and an answer to your question.

Not There Yet	Meeting the Standard	Exceeding the Standard
<ul style="list-style-type: none"> Allow some error in your data (e.g., use equipment incorrectly, be careless, fail to control important variable). Transform your data into displays that are somewhat appropriate and complete but do not help you make interpretations. Be somewhat unorganized, inaccurate, incomplete or illogical in your presentation of data; leave out the <u>units</u> of measurement. 	<ul style="list-style-type: none"> Record observations and measurements carefully and correctly. Transform your data into displays (i.e. graphs, tables) that clarify the results and help you analyze them. Create an organized display (e.g., a data table) for observations or measurements (<u>including units</u>) that is logical and organized. 	<ul style="list-style-type: none"> Record data that comes from <i>complex procedures and note anything unusual</i> (e.g., data that you suspect are in error). Transform your data in ways that <i>highlight patterns and relationships</i> you wish to explain. Make your displays <i>logical, precise</i> (just right), and <i>thorough</i> (complete).

SCIENTIFIC INQUIRY**ANALYZING AND INTERPRETING RESULTS**

- TASK:** Report the results of your investigation, identify patterns, and propose explanations. Use science concepts, models and terminology in your explanations.
- Address your question (answer it or explain why you cannot) and/or explain how the test of your hypothesis came out – use your results to support your conclusions.
- Review your investigation for possible errors in the measurements or observations. Explain the limitations of your conclusions.

Not There Yet	Meeting the Standard	Exceeding the Standard
<ul style="list-style-type: none"> Use scientific knowledge incorrectly in your explanations or explain your results without using any scientific knowledge. Review the investigation but deal with errors and limitations in a trivial or illogical manner. State conclusions that are not clearly related to your question or hypothesis, or fail to use the results for your support. 	<ul style="list-style-type: none"> Report results, identify patterns and purpose explanations - use your science knowledge to propose explanations. Review the design, procedures and results; identify some obvious limitations <u>or</u> sources of error. Relate your conclusions to the question or hypothesis and support with data. 	<ul style="list-style-type: none"> Report results and use your scientific knowledge to correctly <i>discuss and explain relationships</i>. <i>Critique</i> the design, procedures and results; identify <i>important</i> limitations <u>and</u> sources of error. Relate your conclusions to the question or hypothesis <i>and the relationships investigated</i>.

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