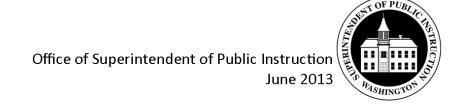# Science, Math & Educational Technology

Cooking Up a Mystery

Use evidence from the lab and Internet to identify a criminal suspect and safety improvements.

Grades 6-8

OSPI-Developed

Assessment

Office of Superintendent of Public Instruction
Old Capitol Building
P.O. Box 47200
Olympia, WA 98504-7200

For more information about the contents of this document, please contact:

Educational Technology
OSPI-Developed Assessments for Educational Technology
edtechcba@k12.wa.us
Phone: (360) 725-4465, TTY (360) 664-3631

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Acknowledgments

Grade 6 – 8 Cooking Up a Mystery
Assessment for Science-Educational Technology

Overview

Introduction

This document contains information which is essential to the administration of the OSPI-Developed assessment for science and educational technology. This assessment is an ideal culminating project for the study of physical and chemical properties and changes. Developed by teachers in Washington State, this assessment is designed to measure learning of selected standards for science and educational technology.

Description of the OSPI-Developed Assessment

This assessment models best practices of instruction, including the use of technology, lesson cycle, differentiation, and student-centered learning. In addition, teachers will be able to collect and use formative and summative evidence regarding student performance on the science and educational technology standards.

Students will complete the assessment by responding to a prompt that requires the use of educational technology. During the assessment, students will document their ability to collect, organize, and analyze research. They will then respond to the original prompt. Teachers will score the final product using the Educational Technology Scoring Guide.

Using the Assessment

The rubric for this educational technology assessment is structured distinctively in that it **combines a checklist and a performance scale**. The Sample Unit Plan and individual Session Plans describe the basic materials and time needed to complete the assessment. Teachers will need to develop their own scoring tools to evaluate student work for additional content area standards.

Teachers should allow any student working productively on the assessment to continue. Session Plans provide some accommodations that differentiate the instruction or assessment based on the needs of students. Teachers should enable specific accommodations for ELL students, such as access to a paraprofessional, during the assessment. Any students who have an Individualized Education Plan (IEP) should have access to all accommodations required by the students' IEP.

For More Information

Please visit the OSPI Web site for additional resources for the educational technology assessments (http://www.k12.wa.us/EdTech).

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This integrated assessment for science and educational technology asks students to conduct research and collect evidence online and in the laboratory. They will use this information to identify a crime suspect and develop safety advice. Teachers can use this assessment to evaluate student knowledge and the ability to meet standards in science and educational technology.

The educational technology assessment is divided into two parts. The first four sessions of the suggested Unit Plan help students to build background knowledge. Teachers can use these sessions to collect and provide formative feedback. During Sessions Five and Six, students will complete the work associated with the summative assessment of the educational technology standards.

This assessment offers an opportunity for teachers to develop their proficiency with the following National Educational Technology Standards for Teachers (NETS·T):
- **2a**: Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity.
- **2d**: Provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching.
- **4a**: Advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources.

For more information on the NETS for Teachers, please visit http://www.iste.org/standards/nets-for-teachers.aspx.

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This integrated assessment addresses the following standards:

Standards	
Educational Technology	Science

1.1.2 Use models and simulations to explore systems, identify trends and forecast possibilities.
  ▪ Gather data, examine patterns, and apply information for decision making using digital tools and resources.
  ▪ Use online databases or simulation software to interpret and predict trends.
1.2.1 Communicate and collaborate to learn with others.
  ▪ Interact and collaborate with others using a variety of digital tools.
  ▪ Communicate information and ideas effectively to multiple audiences using a variety of media and formats.
2.1.1 Practice personal safety.
  ▪ Practice the safe and responsible sharing of information online.
  ▪ Protect access to passwords and digital accounts.
  ▪ Recognize potential online dangers.
  ▪ Understand privacy issues and how data is archived and publicly available.
	NGSS
	MS-PS1-2 Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.
	
	Science and Engineering Practice 7: Engaging in Argument from Evidence

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During this assessment, students will collect and organize evidence from online sources and laboratory investigations. We refer to this collection of evidence as the **Digital Lab Notebook**. Students will use the Notebook to demonstrate knowledge and skills related to educational technology. Teachers can direct the format or allow students to select their own method for building the Notebook. Here are a few examples:

- Document (Microsoft Word, GoogleDocs).
- Digital Notebook using Microsoft OneNote or LiveBinders (http://livebinders.com/).
- Blog entries or a wiki page.
- Mindmap or graphic organizer.

Student Task

It is a dark and stormy night. You have been called to investigate a crime scene at the Steel Chef Bake-off. The competition has been fierce this year, with five famous bakers vying for the $100,000 prize. One of the contestants, Tony Sibal, claims that another chef in the competition sabotaged his entry by replacing one of the most important ingredients in his Banana Champorado (rice pudding) with an unknown substance. Statements from each of the chefs are presented below.

Using your knowledge of chemistry, collect and organize evidence about the dry ingredients used in the competition and determine the composition of the unknown substance. Look for information online about the competition and note any issues which might have led to a tense and ruthless work environment in this competition. After you consider the available information about each participant, identify your prime suspect. Present your evidence and conclusion, and include recommendations for making the event safer—online and offline.

- **Mac O'Rooney**---Mr. O'Rooney had the workstation next to Tony Sibal. Both had access to the same container of sugar. Mac says that because his dish was baked in the oven and Tony's was made on the stovetop, there was no opportunity to contaminate the Champorado. Mac has always placed behind Tony in cooking competitions. Openly frustrated about the losses, Mac needs the money for his growing family.

- **Raquel Rey**---Ms. Rey claims that she baked her entry in the morning and did not see Mr. Sibal when he came in that afternoon to make his dish for the competition. She believes that Mr. Sibal ruined his dish on purpose. She states that she saw Tony make improper measurements with his ingredients and that he tried to start over with his recipe. In order to stay in the competition, he is making a claim against the others so his mistake won't be known. Ms. Rey claims Mr. Sibal tried to pay her to be quiet about his mistake.

- **Sara Sauté**---Sara used to work as a sous-chef in one of Tony Sibal's restaurants. She was fired for mishandling ingredients and has been unable to find a steady job. Ms. Sauté states that she was so busy preparing her own entry that she could not have ruined Mr. Sibal's recipe.

- **Charles "Chip" Turnover**---Chip's family lost their pastry school when Mr. Sibal refused to extend a personal loan. Formerly a friend of Mr. Sibal, Mr. Turnover was determined to win this competition and use the money reopen the pastry school. However, Chip told police that he was out purchasing flour and sugar for his recipe when the sabotage of Tony Sibal's competition entry occurred.

- **Tony Sibal**---Tony has a reputation around the state for being a competent chef and good person. Mr. Sibal claims that all five chefs were in the competition kitchen when he was preparing his recipe and that any one of the other four could have placed additional ingredients in his dish. He is devastated by the damage done to his reputation and the lost opportunity to win the competition.

Grade 6 – 8 Cooking Up a Mystery
Educational Technology Scoring Guide

Directions: Each of the *attribute names* below represents part of an educational technology standard. These are followed by *descriptions* of student performance which meet the standard. If the student work provides evidence of meeting the standard, it earns the *points* shown in the final column. Total the points and then compare to the *Scoring Rubric* to determine the overall level of performance.

We use the term *digital* to refer to tools and information that do not exist in a physical form. Computer software, Web sites, online databases, pod/vodcasts and pages from an eReader are just a few examples.

Attributes of Educational Technology Standards

GLE	Attribute Name	Description	Points
1.1.2	Gather Data	Collects information from digital sources.	1
		Records data using a digital tool.	1
	Forecast Possibilities	Uses evidence from the investigation to identify a suspect.	1
1.2.1	Interact and Collaborate	Participates in class discussions and lab activities with peers.	1
	Information and Ideas	Accurately presents all of the important evidence.	1
	Communicate Effectively	Uses two or more types of media (for example, text, images, graphics) in final product.	1
		Presents evidence and conclusion using a digital tool.	1
2.1.1	Responsible Sharing	Demonstrates responsible online behavior.	1
	Potential Dangers	States at least one way to make the event safer for participants online.	1
TOTAL			

Scoring Rubric for Cooking Up a Mystery

Performance Description	Points
A **Level 3 response** exceeds the standards and reflects that a student can demonstrate knowledge and ability beyond the requirements for Educational Technology GLEs 1.1.2, 1.2.1, and 2.1.1.	8 - 9
A **Level 2 response** meets the standards and reflects that a student understands and is able to perform GLE 1.1.2 *Use models and simulations to explore systems, identify trends, and forecast possibilities*, GLE 1.2.1 *Communicate and collaborate to learn with others*, and GLE 2.1.1 *Practice personal safety* BY using technology to identify a suspect in a crime and suggests safety improvements for future events.	5 - 7
A **Level 1 response** reflects that a student is still working toward meeting GLEs 1.1.2, 1.2.1, and 2.1.1.	0 - 4

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Teachers must use the student task and scoring guide as written. However, teachers have leeway to adapt the amount of instruction, time considerations, and resources for individual classroom use.

There is no requirement to use this plan or the sessions that follow. However, teachers might find the structure useful. There are many ways to use the Sample Unit Plan, shown below. Its versatile design will adapt to multiple instructional strategies and classroom settings as teachers complete this integrated OSPI-Developed assessment.

During the first four sessions, students build background knowledge, and teachers will use these sessions to collect and provide formative feedback on student work. Students will complete the summative tasks for scoring during Sessions Five and Six.

Sample Unit Plan

Session	Standards	Time	Preparation and Materials
1 Set the Stage	ET 1.1.2 ET 2.1.1	50 minutes	☐ Computers or devices for student use ☐ Samples of two or three substances which will be used in Session Three.
2 Prepare a Notebook	ET 1.2.1 ET 2.1.1	50 minutes	☐ Computers or devices for student use ☐ Computer connected to LCD projector ☐ School district Acceptable Use Policy (AUP) *Optional* ☐ Internet access, if students will be using online digital tools. (Be sure that the Web site(s) you want to use will be accessible for students. If blocked, contact your district's technology department or select other digital tools.) ☐ Document camera or interactive whiteboard
3 Gather Information	ET 1.1.2 ET 1.2.1 ET 2.1.1	100 minutes	☐ Safety materials (for example, goggles and aprons) ☐ Lab equipment and substances (see list included with the lab) *Optional* ☐ Document camera or interactive whiteboard ☐ LCD projector
4 Examine Evidence	ET 1.1.2 ET 1.2.1 ET 2.1.1	50 minutes	☐ Computers or devices for student use ☐ Internet access ☐ Computer connected to LCD projector ☐ Acceptable Use Policy for your school district

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Sample Unit Plan			
Session	Standards	Time	Preparation and Materials
5 Identify a Suspect	ET 1.1.2 ET 1.2.1	50 minutes	☐ Safety materials (for example, goggles and aprons) ☐ Lab equipment and substances (see list included with the lab) ☐ Unknown mixture ☐ Computers or devices for student use ☐ Internet access, if students will use online digital tools. (Be sure that the Web site(s) you want to use will be accessible for students. If blocked, contact your district's technology department or select other digital tools.)
6 Conclude the Investigation	ET 1.1.2 ET 1.2.1 ET 2.1.1	50 minutes	☐ Computers or devices for student use ☐ Internet access, if students will be using online digital tools. (Be sure that the Web site(s) you want to use will be accessible for students. If blocked, contact your district's technology department.)

Grade 6 – 8 Cooking Up a Mystery
Assessment for Science-Educational Technology

Session One: Set the Stage

Background

In this session, students will begin to build knowledge of physical and chemical properties of substances (Science standard MS-PS1-2) by "gathering information…using digital tools and resources" (Educational Technology Standard 1.1.2). You can also introduce Educational Technology Standard 2.1.1 as students practice personal safety during their search for information. Students will use this information to plan an investigation that will identify known and unknown substances during Session Three.

Prep	☐ Identify and coordinate with teacher-librarian or technology specialist to ensure that you have access to the computers/tools you need to teach the unit. ☐ Review district policies on Acceptable Use of technology and Digital Citizenship.
Materials	☐ Computers or devices for student use ☐ Samples of two or three substances which will be used in Session Three.

Learning Plan (50 minutes)

Engage	▪ Show or pass around an unlabeled container of a substance, such as baking powder, to the class. Ask students: *What do you think is in the container? What could you do to find out?* ▪ Use student ideas, such as smell, how the substance feels to the touch or reacts to heat, to introduce or review the concepts of physical and chemical properties and chemical changes. As students suggest ideas, categorize these as physical or chemical. ▪ Show students the Student Task for this assessment. Ask them how knowledge of physical and chemical properties and changes could help them answer the problem.
Explore	▪ Either show or provide students a list of the possible substances they must test to solve the mystery. Ask students: *If you're working with unlabeled chemicals, how could you tell the difference safely between them?* ▪ Check for student background knowledge of chemical reactions involving the substances (for example, students might have observed that baking soda reacts with vinegar). ▪ Assign each student a partner and a substance to research. They should look for properties of the substance, safe handling considerations, and how to test for presence of the substance. Be sure to prompt student thinking about personal safety as it applies to using online resources (for example, not sharing personal information or passwords). Although information literacy as it applies to the validity of sources is not part of this assessment, you can remind students of the attributes of credible sources. *Teaching Tips and Accommodations* ▪ If you have only one or two student computers in class, assign time to each student pair to collect information.
Extend	▪ Debrief the research as a class. If you plan to ask students to develop the lab procedures for Session Three, create a class database of properties, safety considerations, and laboratory tests.
Evaluate	▪ Do not score this session as part of the assessment. Provide formative feedback to students on their understanding of the concepts of physical and chemical properties and changes as well as their skill collecting information from digital resources. Review the Scoring Guide for this assessment with students.

Session Two: Prepare a Notebook

Background

In Session One, students built background knowledge of physical and chemical properties and did preliminary research on common kitchen ingredients. They also became familiar with the elements of a possible crime at a cooking competition. The purpose of Session Two is to build students' skills with Educational Technology GLE 1.2.1 as they organize a digital lab notebook. You can also build understanding of Educational Technology GLE 2.1.1 as students practice knowledge and skills related to personal safety while using the computer.

Prep	☐ Determine the tool(s) you plan to model and use with students for the digital lab notebook. See the list in the Resources for ideas. *Optional* ☐ Review information on Internet safety and Acceptable Use on the OSPI Web site (http://www.k12.wa.us/EdTech/InternetSafety/)
Materials	☐ Computers or devices for student use ☐ Computer connected to LCD projector ☐ School district Acceptable Use Policy (AUP) *Optional* ☐ Internet access, if students will be using online digital tools. (Be sure that the Web site(s) you want to use will be accessible for students. If blocked, contact your district's technology department or select other digital tools.) ☐ Document camera or interactive whiteboard

Session Two: Prepare a Notebook

Learning Plan (50 minutes)

Engage	- Briefly review your school district's AUP with students. You could choose three or four points to highlight related to network use, privacy, and filtering. Remind students they will make suggestions related to online safety practices for future contests. - Review the Student Task and information from Session One with students. As you read through the notes, have students brainstorm a list of information they must collect to solve the case. For example, students might want more information about each of the chefs, how all of the substances react to the physical/chemical tests, and examples of safe ways to interact online.
Explain	- Tell students they will use the brainstormed list to organize their upcoming research. - Model the digital tool(s) students can use to construct their notebooks. For example, demonstrate how to use the outline features in a word processing tool, add a table or page to a wiki, or insert a new worksheet into a spreadsheet program. - Be sure to identify the location where students should save their work. If students will use an online tool, review the relevant Internet safety guidelines and privacy issues.
Explore	- Provide time for students to build their notebooks. As students work, monitor progress and support as needed. You can also ask students to help one another use the digital tool. *Teaching Tips and Accommodations* - If you have only one or two student computers in class, assign time to each student to develop their notebook. Be sure students have their brainstormed ideas and tool pre-selected and know where to save their work. - For students who need additional support, provide a template they can modify.
Evaluate	- Students should engage in peer review of their notebooks and make modifications based on constructive feedback. - Do not score this session as part of the assessment. Provide formative feedback to students on their understanding of the concepts of physical and chemical properties and changes. Also give feedback on students' skills with the use of a digital tool to organize and store information.

Session Three: Gather Information

Background

In Session One, students gathered information about some common household ingredients, their safe handling, and ways to test for their presence. Now students will conduct laboratory tests to determine the physical and chemical properties of the substances (Science standard MS-PS1-2). They will include the results of these tests in their digital lab notebook, extending their practice and experience with Educational Technology Standards 1.1.2, 1.2.1, and 2.1.1. Later in the assessment, they will apply this information to identify the unknown substance found at the crime scene.

Prep	☐ Determine the amount of scaffolding students will need to complete the inquiry activity. We have included a step-by-step version of the Lab, but students can develop their own procedures and data tables based on the information collected during Session One.
Materials	☐ Safety materials (for example, goggles and aprons) ☐ Lab equipment and substances (see list included with the lab) *Optional* ☐ Document camera or interactive whiteboard ☐ LCD projector

Learning Plan (100 minutes)

Engage	▪ Review information gathered during Session One. ▪ Remind students of the information detailed in the Student Task and identify the learning targets for this session.
Explore	▪ Review the procedures included with the lab or provide time for students to develop their own lab procedures for testing the known substances. Stress the importance of taking good notes. They will need this information to identify the unknown substance found at the crime scene. ▪ Review all laboratory safety considerations. Also remind students of the proper disposal methods for the chemicals they use. ▪ Students should complete the laboratory investigation and collect relevant observations.
Extend	▪ As students complete their investigation, allow them to enter information into their digital research notebooks. Remind students about protecting the accounts they are using.

Evaluate	▪ Debrief the investigation as a class. If you used the lab we provided, have students share and receive feedback on their flowcharts.
	▪ Do not score this session as part the assessment. Be prepared to provide formative feedback to students. Focus on their knowledge and skills related to:
	  ▪ Use of digital tools to organize and store information.
	  ▪ Ability to explain how to combine information to reach a conclusion.
	  ▪ Use of digital tools to communicate subject-related content.

Extend	*Optional* ▪ Have students practice by identifying an unknown sample (single substance or a mixture of two) provided by a partner.

Session Four: Examine Evidence

Background

In this session, students will review online information about the Steel Chef Bake-off. Students will have access to a site which provides background information on each subject, contest rules, and the recipes involved. Gathering data for later use in forecasting possibilities is a component of Educational Technology GLE 1.1.2. Students will also gain significant practice "recognizing potential online dangers" and they will develop understanding of online privacy issues (Educational Technology Standard 2.1.1) as they explore the information. Have students collect their observations in the digital lab notebooks (Educational Technology GLE 1.2.1). As you debrief the session with students, use the information they gathered to develop understanding of the difference between results and conclusions (Science and Engineering Practice 7).

Prep	☐ Be sure that the Web site(s) you want to use will be accessible for students. If blocked, contact your district's technology department or provide screen shots. *Optional* ☐ Pre-teach, re-teach, or extend student knowledge of Internet safety using one of the lesson plans from the Resources.
Materials	☐ Computers or devices for student use ☐ Internet access ☐ Computer connected to LCD projector ☐ Acceptable Use Policy for your school district

Session Four: Examine Evidence

Learning Plan (50 minutes)

Engage	- Review the information students collected during Session Three. Remind students of the problem they are trying to solve. The lab evidence is only one component of the case. They also need to consider information about the suspects. - Tell students that today they will review information about the contest. Remind students that they should already have a place in their digital lab notebook to record their observations about the suspects.
Explore	- Show students the "Steel Chef" Web site (http://steelchef.pbworks.com/) they can use as a starting point for gathering information. - Provide 10 - 15 minutes of time for students to conduct research on the suspects. Students should record observations in their digital lab notebooks.
Explain	- Debrief observations with the class. - Ask students: *What kinds of personal information did the chefs post online? What kinds of personal information are okay to share---how do you know?* Have students consider the possibility of identity or property theft (impact of status updates) and identify ways to prevent these. - You can also ask students about the comments made about the contestants. *Would students consider any of the chefs to be a bully? What evidence did they collect? What action would they suggest the Steel Chef organization take to address this?*
Extend	Give students another 10 minutes to finish their research and record observations in their digital notebooks.
Evaluate	- Conduct a final class discussion about the information students collected. Ask students to propose various ideas about what happened at the competition. Have them predict the unknown substance. Emphasize the difference between the evidence/results of their investigation and the conclusions they draw. - Do not score this session as part the assessment. Be prepared to provide formative feedback. Focus on their knowledge and skills related to: - Ability to describe and apply components of the district Acceptable Use Policy as they search for, and collect information about, the chefs and review their online behavior. - Ability to identify potential consequence(s) of the unethical use of technology. - Ability to explain the importance of good digital citizenship.

Session Five: Identify a Suspect

Background

Students should use their experience with identifying physical and chemical properties and changes to determine the composition of an unknown substance (Science standard MS-PS1-2). This information, plus the notes from Session Four, will enable students to identify their prime suspect (Educational Technology Standards 1.1.2 and 1.2.1).

Prep	☐ Select and prepare one of the "unknown" mixtures for student testing:
	  ▪ Mac O'Rooney: powdered sugar + flour or salt
	  ▪ Chip Turnover: baking soda + flour, sugar, or salt
	  ▪ Raquel Rey: baking powder + flour, sugar, or salt
	  ▪ Sara Sauté: cornstarch and sugar

Materials	☐ Safety materials (for example, goggles and aprons) ☐ Lab equipment and substances (see list included with the lab) ☐ Unknown mixture ☐ Computers or devices for student use ☐ Internet access, if students will use online digital tools. (Be sure that the Web site(s) you want to use will be accessible for students. If blocked, contact your district's technology department or select other digital tools.)

Learning Plan (50 minutes)

Engage	▪ Review the information students gathered during previous sessions. Remind students of the information in the Student Task and identify learning targets for this session.
Explore	▪ Tell students that during this session they will work to identify the unknown substance from the crime scene. ▪ Review all laboratory safety considerations. Also remind students of the proper disposal methods for the chemicals they use. ▪ Students should complete the identical laboratory procedures they followed during Session Three and collect relevant observations about the unknown substance.
Extend	▪ As students complete their investigation, allow them to begin entering information into their digital lab notebook.

Evaluate	▪ Do not score this session as part the assessment. Be prepared to provide formative feedback to students. Focus on their knowledge and skills related to
	  ▪ Use of digital tools to organize and store information.
	  ▪ Ability to explain how they could combine information to develop a conclusion.
	  ▪ Use of digital tools to communicate subject-related content.

Session Six: Conclude the Investigation

Background

During the previous sessions, students used qualitative chemical tests and Internet research to collect information they can use to solve the crime we describe in the Student Task. Session Six represents the summative component of the assessment for Educational Technology Standards 1.1.2, 1.2.1, and 2.1.1. In this session, students will finalize their notebook, identify a suspect, and describe how the evidence they collected does or does not support their conclusion. They will also advise the competition committee on how to make the event safer in the future.

Materials	☐ Computers or devices for student use ☐ Internet access, if students will be using online digital tools. (Be sure that the Web site(s) you want to use will be accessible for students. If blocked, contact your district's technology department.)

Learning Plan (50 minutes)

Engage	▪ Review the Student Task and Scoring Guide for this assessment. Prompt student thinking about the information and evidence they collected during the assessment.
Explain	▪ Have students create their response to the original prompt for this assessment. Provide assistance as needed. ▪ Be sure that students know where to save or submit their work. *Teaching Tips and Accommodations* ▪ If you have access to only one or two student computers in class, assign each student a time to work on their final product.
Evaluate	▪ Have students submit their work to a designated location. ▪ Score students' work using the Scoring Guide for Educational Technology

Cooking Up a Mystery
Physical and Chemical Properties of Substances

Forensic Chemist _____

Introduction

Forensic chemists help solve crimes by performing tests on unknown substances. The procedures must give results that can determine a clear difference between one material and another. The forensic chemist compares the results of these tests to those of known substances. If all of the tests are positive for a substance, the chemist can form a conclusion.

In this investigation, you will perform scientific tests on a variety of white powders. You will record your observations and then use the results to identify an unknown substance.

Materials

- 8 wooden sticks
- 8 x 11" sheet of black paper
- 8 x 11" sheet of acetate or transparency film
- 3 eyedroppers
- beaker of water
- beaker of white vinegar

- pH or litmus paper
- beaker of iodine solution
- 8 squares aluminum foil

- clothespin
- candle or burner

Substances:
- baking powder
- baking soda
- cornstarch
- flour
- sugar
- salt
- powdered sugar

Procedure

NOTE: Observe all safety precautions.

Part I: Physical Properties

1. Use a wooden stick to place a small sample of each powder on a sheet of black paper. Be sure not to place the wooden stick in more than one kind of powder. Label the powders using a pencil.
2. Examine the appearance of each powder. *What do you observe about the size and shape of the grains?*
3. Carefully smell each powder by using your hand to waft any odors toward your nose. Do not place your nose next to the powder. *How would you describe the smell of each?*
4. Pinch each powder, one at a time, between your fingers. *What do you notice about the texture of each powder?*
5. Dispose of the powder samples. Use the disposal method chosen by your teacher.

Cooking Up a Mystery
Physical and Chemical Properties of Substances

Part II: Chemical Properties

1. Place a square of acetate over your black paper so you can see the labels for the powders. Use a wooden stick to place a small sample of each powder on a square of acetate.
2. Use an eyedropper to place a few drops of water on each powder sample. Be sure the mixtures do not touch one another. Look for any reactions. *Which powder(s) is soluble in water?*
3. Dip a small strip of pH or litmus paper into each mixture. *Which powder(s) are acids? bases? neutral?*
4. Dispose of the solutions. Use the disposal method chosen by your teacher. Then, clean off the acetate and repeat step one.
5. Use an eyedropper to place a few drops of white vinegar on each powder sample. Be sure the mixtures do not touch one another. Look for any reactions. *Which powder(s) reacts with vinegar?*
6. Dispose of the solutions. Use the disposal method chosen by your teacher. Then, clean off the acetate and repeat step one.
7. Use an eyedropper to place a few drops of iodine solution on each powder sample. Be sure the mixtures do not touch one another. Look for any reactions. *Which powder(s) reacts with iodine solution?*
8. Dispose of the solutions. Use the disposal method chosen by your teacher. Then, clean off the acetate square.
9. Use a wooden stick to place a small sample of each powder on its own square of aluminum foil. Pinch the sides of the aluminum foil so that the samples can't fall out. Use a clothespin or clamp to hold each sample (one at a time) in a flame for 1 minute. *Which powder(s) react with heat?*

Observations

Physical Properties

	Appearance	Smell	Touch
Baking Powder			
Baking Soda			
Corn Starch			
Flour			
Sugar			
Salt			
Powdered Sugar			

Cooking Up a Mystery
Physical and Chemical Properties of Substances

Chemical Properties

	Solubility	pH	Vinegar	Iodine	Heat
Baking Powder					
Baking Soda					
Corn Starch					
Flour					
Sugar					
Salt					
Powdered Sugar					

Analysis

Draw a flow chart or concept map which shows how you would use your results to identify an unknown substance.

Posting Photos and Student Work
Parental Permission Form

Parental Consent Form

In Washington State's K-12 schools, email, blogs, podcasts, collaborative document sites, such as GoogleDocs, and multimedia items that publish to school and class Web sites, have become an integral part of education, administration and communication with the community.

As educators, we are committed to practices that promote student safety and privacy of information—online and offline. We approach communication software and hardware, which allow students to connect with peers, experts and educators as important tools for student learning.

Given that web-based communication requires an online presence—not always anonymous—we ask parents and students to consider carefully the **acceptable level of access and participation** your student will have using digital tools at school.

These three statements summarize _____ school's policy related to the privacy of student content.

1. Publishing photos of students or samples of student work promotes an opportunity to share and learn with others. It is acceptable to publish images of students and student learning products on school Web pages without information that would identify the student. **Parents/guardians must provide written consent to publish their child's photo or school work on any school-related Web site before the item is published.**
2. All students and teachers must abide by the copyright laws of the United States.
3. All student files, created and stored on the school district's network, are the property of the school district. As district property, all files and multimedia items are open to the review and evaluation of district officials.

Permission

As a parent or legal guardian of, _____, I have read and understand the policy statement related to the posting of images of students and student work online.

I consent to the permission(s) I have initialed below:

_____ I grant permission for the publication of my student's photo or work without information that would identify the student.

_____ I grant permission for my student to use online tools provided by the teacher.

_____ I grant permission for my student to use a personal email account for assignments while at school.

Student Name (Print): _____

Student Signature: _____ Date: _____

Parent (Guardian) Signature: _____ Date: _____

Educational Technology Resources			
Resources			
		Description	Location
Digital Tools		You can use **Glogster** to develop an interactive poster.	http://edu.glogster.com/
		Animoto has educational accounts. Students can upload pictures, add text and music, and generate a presentation.	http://animoto.com/
		With a **Voicethread** account, students are able to share documents, images, and videos with others.	http://voicethread.com/
		Students can create posts for a classroom **blog**. Examples of education-friendly sites are provided, but there are others.	http://edublogs.org/ http://kidblog.org/home.php
		Wikis are Web sites that are easy to create and edit. Many services offer free wikis for educators.	http://www.wikispaces.com/ http://pbworks.com/
		Use **Webspiration** to map out ideas, organize with outlines and collaborate online with teams or colleagues.	http://mywebspiration.com/
Lab Notebook		**Using Notebooks in the Middle School** is a free e-book by Michael Klentschy and is available through Google.	http://bit.ly/hWiLFm
		Examples of student work, "information to support the use of science notebooks, and strategies to use notebooks to integrate reading, writing, mathematics, and science" are available at **Science Notebooks in the K-12 classroom**.	http://www.sciencenotebooks.org/
Videos			
		Description	Location
		Part I of a series of brief clips about the use of Webspiration. There are links on the side of the page for other Webspiration features.	http://www.youtube.com/watch?v=z3CmdlIuxQE
		Glogster in 90 seconds	http://www.youtube.com/watch?v=MvC47fUANLk
		Explanation of Glogster features	http://www.youtube.com/watch?v=qW5SSn9nno0
		Shows how Microsoft OneNote can be used to organize and share information (including multimedia options)	http://www.youtube.com/watch?v=1sDzbrRsZZk
Lesson Plans			
		Description	Location
		How to Be Safe Online	http://www.readwritethink.org/parent-afterschool-resources/tips-howtos/safe-online-30119.html
Policy Guidance			
		Description	Location
		Children's Internet Protection Act (CIPA)	http://www.e-ratecentral.com/CIPA/default.asp
		Children's Online Privacy Protection Act (COPPA)	http://www.coppa.org/comply.htm
		Family Educational Rights and Privacy Act (FERPA)	http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html