Science Objectives

1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08

Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Essential Question

What steps would you take to create a question that can be answered using the Science Method of Inquiry?

(action plan)

Wayne County Schools 21st Century Instructional Lesson Plan

How Cool is Fire?

NAME:	Subject: Science
Date:	Grade Level (s): 6

Standards/ Objectives Addressed (NCSCOS)

1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08

Identify and create questions and hypotheses that can be answered through scientific investigations. * Develop appropriate experimental procedures for: • Given questions. • Student generated questions. * Analyze evidence to explain observations, make inferences and predictions. * Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. * Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Essential Question(s) **(In student-friendly terms)**

What steps would you take to create a question that can be answered using the Science Method of Inquiry? (action plan)

Assess **(Look at student data to plan. Use formative and/ or summative assessments.)**

Examine student readiness and mastery of the Scientific Method and process.

High Yield Instructional Strategies (check all that apply to the lesson)

Identifying similarities and differences	✓	Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	✓
Homework and practice							

Learner Diversity

- **How will you differentiate to meet the needs of all learners in your class?**

504 modifications ET and RA. Differentiated assignments and presentations will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)

- **Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.**

Today we will examine fire, its properties and uses. We will apply these observations to create an experimental model to test our theories regarding fire.

Instructional Practices Used in this Lesson

Coaching	✓	**Providing Directions/ Instructions**	✓	**Learning Centers**	
Discussion	✓	**Providing opportunities for practice**	✓	**Teacher-directed Questions and Answers**	✓ ✓
Hands-on experiences		**Direct Instruction**	✓	**Modeling**	✓
Presentation	✓	**Testing**	✓	Other: Science6.org	✓

Suggested brained-based learning activities promoting the above Instructional Practices					
Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps		Student Facilitators		Movement	
Technology Integration	✓	Storytelling		Humor	
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning	✓
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment	✓	Drawing or illustrating	✓	Other:	
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:	

Type(s) of Grouping Used:
___small group _✓_student pairs _✓_whole group _✓_individual

Explain, Explore, Elaborate
Content Chunks: How will you divide and teach the content?

- **Transitions should be used every 5-15 minutes to keep the students' brains engaged.**
- **Involve students in an analysis of their explorations.**
- **Use reflective activities to clarify and modify student understanding.**
- **Give students time to think, plan, investigate and organize collected information.**
- **Give students the opportunity to expand and solidify their understanding of the concept and/ or apply it to a real-world situation.**

See next page for instructional detail.

Evaluate (Feedback/ Closure)

- **Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?**
- **Present students with a scoring guide (such as a rubric) at the beginning to self-assess.**
- **What assessment(s) will be used to be sure the students are successful?**

Students will create a Science Method of Inquiry poster.

Describe, Analyze, Reflect:

- **How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/ or remarks to support your view.**
- **What caused the lesson to go well? What challenges did you encounter?**
- **What did you do to contribute to the lesson's effectiveness?**
- **What learning did you take from this lesson to apply to future lessons? What would you do differently next time?**

Date: _____ Time Frame: 40 minutes

How cool is fire?

Essential Question:	What steps would you take to create a question that can be answered using the Science Method of Inquiry? (action plan)
Objective (s) Numbers:	**1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08**
Outcomes:	Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.
Materials:	one piece of flash paper, handkerchief, rubbing alcohol, lighter, candle, tongs **Preparation**: Create a solution (2 parts alcohol : 1 part water)
Anticipatory Set:	Today we will examine fire, its properties and uses. We will apply these observations to create an experimental model to test our theories regarding fire.

During the Lesson

Presentation of Information:	
Integration of Other Subjects:	Writing (Restating questions in declarative format) Reading (prereading skills, vocabulary, dramatic presentation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Introduce the Science Method of Inquiry. Discuss the steps and assess the general knowledge of the group. Discuss the Safety Warning! This demonstration involves fire and should not be done by students or adults that have not practiced in advance.
Differentiation:	504 modifications ET and MA. Student and teacher modeling will help to guide all students to reach expected outcomes.
Presentation:	http://www.science6.org/pdf/classroom/cool_fire.pdf
Guided Practice:	Assist the students through each phase of the Science Method. Pay special attention to the new concept - observation.

After the Lesson

Independent Practice	Students will create an experimental abstract, analyze their data and draw conclusions regarding the experiment. Students will complete the conclusions section of the abstract while paying special attention to a future experiment that they would like to try. **Advanced Learners** will meet in cooperative learning groups to evaluate additional experiments and select the experiment that their learning group would fund.
Closure / Assessment:	Students will create a Science Method of Inquiry poster.

Integration with School-wide Focus: Improve Reading and Writing performance

How Cool is Fire?

- Materials:
  - one piece of flash paper
  - handkerchief
  - rubbing alcohol, lighter, candle
  - tongs to hold burning handkerchief
- Preparation:
  - Create a solution (2 parts alcohol : 1 part water)
- Introduction:
  - **Safety Warning**! This demonstration involves fire and should not be done by students or adults that have not practiced in advance.
  - Light the candle and begin to talk about the Science Method.
    - Question
    - Observe / Infer
    - Hypothesis
    - Procedures
    - Data
    - Analyze Data
    - Conclusions
  - Drop the flash paper onto the candle.
  - Ask a Question – How cool is fire?
    - Have a few students share thoughts and ideas.
    - Students will inevitably conclude that fire burns stuff up – let them know that the word they are looking for is **consumes**.
  - Remove the Handkerchief from your pocket, soak it in the alcohol solution, (wring it out), and set it on fire.
  - After the commotion dies down, say "This is the beauty of the Science Method! The conclusions step lets me think of another experiment...Since the fire didn't burn the cloth, I wonder if I can set my hand on fire without "consuming" the hair on the back of my hand?"
- Lesson:
  - Question: Can the teacher set his/her hand on fire without "consuming" the hairs?
  - Observations / Inferences: Students will record 4 facts about fire and 2 thoughts about the question.
  - Hypothesis: Students restate the question as an affirmative or negative statement.
  - Procedure:
    - dip hand into solution
    - apply fire
  - Data: Hair remained without singeing.
  - Analyze Data: Hair remained without singeing.
  - Conclusions:
    - Students state whether their hypothesis was proved or not proved.
    - Students discuss any problems that may have arisen.
    - Students write a sentence to discuss another experiment that this process leads them to want to try?

Science Objectives

1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08

Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Essential Question

What steps would you take to create a question that can be answered using the Science Method of Inquiry?

(action plan)

Wayne County Schools 21st Century Instructional Lesson Plan
Magic or Science?

NAME:	Subject: Science
Date:	Grade Level (s): 6

Standards/ Objectives Addressed (NCSCOS)

1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08

Identify and create questions and hypotheses that can be answered through scientific investigations. * Develop appropriate experimental procedures for: • Given questions. • Student generated questions. * Analyze evidence to explain observations, make inferences and predictions. * Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. * Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Essential Question(s) **(In student-friendly terms)**

What steps would you take to create a question that can be answered using the Science Method of Inquiry? (action plan)

Assess **(Look at student data to plan. Use formative and/ or summative assessments.)**

Examine student readiness and mastery of the Scientific Method and process. Read and review a few "conclusions" from the last lab.

High Yield Instructional Strategies (check all that apply to the lesson)

Identifying similarities and differences	✓	Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	✓
Homework and practice							

Learner Diversity

- **How will you differentiate to meet the needs of all learners in your class?**

504 modifications ET and RA. Differentiated assignments and presentations will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)

- **Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.**

Today we will examine magic, its history and the science behind it. We will apply the Science Method of Inquiry to a magical happening to see if we can better understand how the Science Method of Inquiry is used to help us understand our world.

Instructional Practices Used in this Lesson

Coaching	✓	**Providing Directions/ Instructions**	✓	**Learning Centers**	
Discussion	✓	**Providing opportunities for practice**	✓	**Teacher-directed Questions and Answers**	✓ ✓
Hands-on experiences		**Direct Instruction**	✓	**Modeling**	✓
Presentation	✓	**Testing**	✓	Other: Science6.org	✓

Suggested brained-based learning activities promoting the above Instructional Practices					
Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps		Student Facilitators		Movement	
Technology Integration	✓	Storytelling		Humor	
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning	✓
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment	✓	Drawing or illustrating		Other:	
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:	

Type(s) of Grouping Used:
___small group _✓_student pairs _✓_whole group _✓_individual

Explain, Explore, Elaborate
Content Chunks: How will you divide and teach the content?

- **Transitions should be used every 5-15 minutes to keep the students' brains engaged.**
- **Involve students in an analysis of their explorations.**
- **Use reflective activities to clarify and modify student understanding.**
- **Give students time to think, plan, investigate and organize collected information.**
- **Give students the opportunity to expand and solidify their understanding of the concept and/ or apply it to a real-world situation.**

See next page for instructional detail.

Evaluate (Feedback/ Closure)

- **Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?**
- **Present students with a scoring guide (such as a rubric) at the beginning to self-assess.**
- **What assessment(s) will be used to be sure the students are successful?**

Students should share and discuss their hypotheses. Some of them want to try to develop procedures for testing their hypotheses.

Describe, Analyze, Reflect:

- **How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/ or remarks to support your view.**
- **What caused the lesson to go well? What challenges did you encounter?**
- **What did you do to contribute to the lesson's effectiveness?**
- **What learning did you take from this lesson to apply to future lessons? What would you do differently next time?**

Date: _____ Time Frame: 40 minutes

Magic or Science

Essential Question:	What steps would you take to create a question that can be answered using the Science Method of Inquiry? (action plan)
Objective (s) Numbers:	**1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08**
Outcomes:	Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.
Materials:	white Styrofoam cup, "dry-lock" aka(Water Gel, Magic Powder, Sodium Polyacrylate), water, pencil **Preparation**: Carefully put 1 teaspoon of the "dry-lock" in the bottom of the Styrofoam cup. (You don't want any grains to be visible upon quick examination)
Anticipatory Set:	Today we will examine magic, its history and the science behind it. We will apply the Science Method of Inquiry to a magical happening to see if we can better understand how the Science Method of Inquiry is used to help us understand our world.

During the Lesson

Presentation of Information:	
Integration of Other Subjects:	Writing (Restating questions in declarative format) Reading (prereading skills, vocabulary, dramatic presentation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Review the Science Method of Inquiry. Discuss Magic, Witches and Science. Today we will focus on the first 3 steps of the Science Method.
Differentiation:	504 modifications ET and MA. Student and teacher modeling will help to guide all students to reach expected outcomes.
Presentation:	http://www.science6.org/pdf/classroom/magic_science.pdf
Guided Practice:	Assist the students through each phase of the Science Method. Pay special attention to questions, observations / inferences.

After the Lesson

Independent Practice	Students will begin an abstract and practice the first 3 steps of the Science Method. **Advanced Learners** will meet in cooperative learning groups to evaluate hypotheses and select the hypothesis that their learning group would fund.
Closure / Assessment:	Students should share and discuss their hypotheses. Some of them want to try to develop procedures for testing their hypotheses.

Integration with School-wide Focus: Improve Reading and Writing performance

Magic or Science?

- Materials:
  - white Styrofoam cup
  - "dry-lock" aka(Water Gel, Magic Powder, Sodium Polyacrylate)
  - water
  - pencil
- Preparation:
  - Carefully put 1 teaspoon of the "dry-lock" in the bottom of the Styrofoam cup.
- Introduction:
  - Discuss Magic, Witches and Science.
  - When we observe the natural world, questions arise that we want to discover the answers to! We can apply the Scientific Method of Inquiry to **try** to find out those answers.
  - Today we will focus on the first 3 steps of this Method.
- Demonstration:
  - Show the students the empty cup. Walk around and let them glance in it – nobody gets a "thorough inspection" because there are too many kids who must look at it. They are welcome to discuss this lack of thorough observation in the problems section of the conclusion.
  - Have a "**brave**" volunteer sit on a chair.
  - Fill the cup with 4-6 fl. oz. of water.
    - Play up the probability of "brave volunteer" getting wet! Sometimes I even pretend to call his mother and let her know that he will need a new set of clothes.
  - Poke holes in the cup with the pencil.
- Lesson:
  - Question: (Students should wonder what happened to the water)
  - Observations / Inferences: Students will record details of the demonstration.
  - Hypothesis: Students restate the question and answer it with their idea.
- Applications:
    - Students should share and discuss their hypotheses. Some of them want to try to develop procedures for testing their hypotheses.
- Additional:
    - Don't tell the students what happened or show them how to do this. You may want to repeat this experiment later in the year when they are more skillful experimenters.

Science Objectives

1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08

Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Essential Question

There are a variety of ways to gather observations that will help you form a hypothesis and obviously the more observations you can make the more likely it is that you will form a sound hypothesis. However, if time or funding were to limit your ability to make observations, which 2 observation techniques would you rely on?

(decision making)

Wayne County Schools 21st Century Instructional Lesson Plan
Observations Practice

NAME:	Subject: Science
Date:	Grade Level (s): 6

Standards/ Objectives Addressed (NCSCOS)

1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08

Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Essential Question(s) (In student-friendly terms)

There are a variety of ways to gather observations that will help you form a hypothesis and obviously the more observations you can make the more likely it is that you will form a sound hypothesis. However, if time or funding were to limit your ability to make observations, which 2 observation techniques would you rely on? (decision making)

Assess (Look at student data to plan. Use formative and/ or summative assessments.)

Examine student readiness and mastery of the Scientific Method and process. Read and review a few "observations" from the last lab.

High Yield Instructional Strategies (check all that apply to the lesson)

Identifying similarities and differences	✓	Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	✓
Homework and practice							

Learner Diversity

- **How will you differentiate to meet the needs of all learners in your class?**

504 modifications ET and RA. Differentiated assignments and presentations will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)

- **Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.**

Today we will examine the process and importance of observations and making observations.

Instructional Practices Used in this Lesson

Coaching	✓	**Providing Directions/ Instructions**	✓	**Learning Centers**	
Discussion	✓	**Providing opportunities for practice**	✓	**Teacher-directed Questions and Answers**	✓ ✓
Hands-on experiences	✓	**Direct Instruction**	✓	**Modeling**	✓
Presentation	✓	**Testing**	✓	Other: Science6.org	✓

Suggested brained-based learning activities promoting the above Instructional Practices

Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps		Student Facilitators		Movement	
Technology Integration	✓	Storytelling		Humor	
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning	✓
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment	✓	Drawing or illustrating		Other:	
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:	

Type(s) of Grouping Used:

_✓_small group _✓_student pairs _✓_whole group _✓_individual

Explain, Explore, Elaborate

Content Chunks: How will you divide and teach the content?

- **Transitions should be used every 5-15 minutes to keep the students' brains engaged.**
- **Involve students in an analysis of their explorations.**
- **Use reflective activities to clarify and modify student understanding.**
- **Give students time to think, plan, investigate and organize collected information.**
- **Give students the opportunity to expand and solidify their understanding of the concept and/ or apply it to a real-world situation.**

See next page for instructional detail.

Evaluate (Feedback/ Closure)

- **Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?**
- **Present students with a scoring guide (such as a rubric) at the beginning to self-assess.**
- **What assessment(s) will be used to be sure the students are successful?**

Students will complete the conclusions section of the observation practice worksheet.

Describe, Analyze, Reflect:

- **How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/ or remarks to support your view.**
- **What caused the lesson to go well? What challenges did you encounter?**
- **What did you do to contribute to the lesson's effectiveness?**
- **What learning did you take from this lesson to apply to future lessons? What would you do differently next time?**

Date: _____ Time Frame: 40 minutes

Observations Practice

Essential Question:	There are a variety of ways to gather observations that will help you form a hypothesis and obviously the more observations you can make the more likely it is that you will form a sound hypothesis. However, if time or funding were to limit your ability to make observations, which 2 observation techniques would you rely on? (decision making)
Objective (s) Numbers:	**1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08**
Outcomes:	Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.
Materials:	index cards, worksheet (one per student)
Anticipatory Set:	Today we will examine the process of observations and making observations.

During the Lesson

Presentation of Information:	
Integration of Other Subjects:	Writing (Restating questions in declarative format) Reading (prereading skills, vocabulary, dramatic presentation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Review the Science Method of Inquiry. Discuss observations, physical properties and the importance of making specific and detailed observations.
Differentiation:	504 modifications ET and MA. Student and teacher modeling will help to guide all students to reach expected outcomes.
Presentation:	http://www.science6.org/pdf/classroom/observation_practice.pdf
Guided Practice:	Model Observations by making observations about the teacher. Collect 15 unique physical/behavioral characteristics then decide on the 5 most unique descriptors.

After the Lesson

Independent Practice	Students will observe and record notes about another student throughout the day. On the following day they will limit their list to 5 characteristics and record them on an index card. Students will see if their observations enable a third party to identify their subject. **Advanced Learners** should test third party identification on 10 third parties, then create a bar graph to display the results.
Closure / Assessment:	Students will complete the conclusions section of the observation practice worksheet.

Integration with School-wide Focus: Improve Reading and Writing performance

Observations Practice

- **Day 1**
  - You will be assigned a random subject (classmate).
  - Observe and record notes about that subject throughout the day.
    - (no bad or demeaning notes allowed - if you observe them picking their nose please omit that observation)
    - No one should be able to find out who you are observing - be subtle!
    - Record specific observations that you think will provide good clues to the person's identity.
- **Day 2**
  - You will be given an index card.
    - Put your name (not the subject's) on the card.
    - Record your top 5 observations on this card.
  - The cards will be collected and randomly redistributed.
    - Use the information on the new card to infer the identity of the subject.
    - Return the card to the scientist to verify your inference.
    - Complete the Conclusions Section below.
- **Conclusions**
  - Respond to the following in complete sentences that restate and answer the question.
    - Was your subject correctly identified?
    - Was it easy or hard to observe your subject without their knowledge? (Give an example)
    - Compare your original list with the 5 final observations and answer either 1 or 2 below.
      1. Was there an observation you wished you had included?
      2. Which observation do you think was the most informative?
    - Make a double list table to respond to: “Besides scientists and teachers, what occupations might need to make careful observations to fulfill their duties? (at least 3)”

Occupation	**Observations**
Scientists	Physical properties, Reactions
Teachers	Learning Styles, Conduct, Current Effort

Science Objectives

1.01, 2.02

Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.

Essential Question

Archeology is studying past civiliztions and cultures, while space exploration is development of technologies for future human advancements. If you had $10,000 to give to one of these sciences, which one would you choose? Explain. (decision making)

Wayne County Schools 21st Century Instructional Lesson Plan

How Science Works

NAME:	Subject: Science
Date:	Grade Level (s): 6

Standards/ Objectives Addressed (NCSCOS)

1.01, 2.02
Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.

Essential Question(s) (In student-friendly terms)

Archeology is studying past civilizations and cultures, while space exploration is development of technologies for future human advancements. If you had $10,000 to give to one of these sciences, which one would you choose? Explain. (decision making)

Assess (Look at student data to plan. Use formative and/ or summative assessments.)

Examine student readiness and mastery grade level reading and evaluation. Students will need assistance and modeling to master the restate and answer format to complete evaluation assignments.

High Yield Instructional Strategies (check all that apply to the lesson)

Identifying similarities and differences	✓	Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning		Generating and testing hypotheses	✓
Homework and practice	✓						

Learner Diversity

- **How will you differentiate to meet the needs of all learners in your class?**

504 modifications ET and RA. Differentiated assignments and presentations will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)

- **Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.**

Today we will examine pure science and applied science. We will compare and contrast science and technology through an examination of archeological finds.

Instructional Practices Used in this Lesson

Coaching	✓	**Providing Directions/ Instructions**	✓	**Learning Centers**	
Discussion	✓	**Providing opportunities for practice**	✓	**Teacher-directed Questions and Answers**	✓ ✓
Hands-on experiences	✓	**Direct Instruction**	✓	**Modeling**	✓
Presentation	✓	**Testing**	✓	Other: Science6.org	✓

Suggested brained-based learning activities promoting the above Instructional Practices					
Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps		Student Facilitators		Movement	
Technology Integration	✓	Storytelling		Humor	
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning	✓
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment	✓	Drawing or illustrating		Other:	
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:	

Type(s) of Grouping Used:
_✓_small group _✓_student pairs _✓_whole group _✓_individual

Explain, Explore, Elaborate
Content Chunks: How will you divide and teach the content?

- **Transitions should be used every 5-15 minutes to keep the students' brains engaged.**
- **Involve students in an analysis of their explorations.**
- **Use reflective activities to clarify and modify student understanding.**
- **Give students time to think, plan, investigate and organize collected information.**
- **Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.**

See next page for instructional detail.

Evaluate (Feedback/Closure)

- **Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?**
- **Present students with a scoring guide (such as a rubric) at the beginning to self-assess.**
- **What assessment(s) will be used to be sure the students are successful?**

Create an archeological dig using an aluminum pan, sand, and 3 artifacts (choose various math manipulatives). Then present their dig to another advanced learner, who will carefully excavate the site while creating a site map.

Describe, Analyze, Reflect:

- **How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.**
- **What caused the lesson to go well? What challenges did you encounter?**
- **What did you do to contribute to the lesson's effectiveness?**
- **What learning did you take from this lesson to apply to future lessons? What would you do differently next time?**

Date: _____ Time Frame: 80 minutes

How Science Works

Essential Question: Archeology is studying past civilizations and cultures, while space exploration is development of technologies for future human advancements. If you had $10,000 to give to one of these sciences, which one would you choose? Explain. (decision making)

Objective (s) Numbers: **1.01, 2.02**

Outcomes: Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.

Materials: Textbook pages 6-11, Presentation CD

Anticipatory Set: Today we will examine pure science and applied science. We will compare and contrast science and technology through an examination of archeological finds.

During the Lesson

Presentation of Information:

Integration of Other Subjects: Writing (Restating questions in declarative format)
Reading (prereading skills, vocabulary, dramatic presentation)

Integration of Reading: Reading for information and interpretation.

Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Review and define the lesson vocabulary: science, technology, archeology

Differentiation: 504 modifications ET and MA. Student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Popcorn styled reading of the Science Passage with occasional breaks for further discussion and illustration.

After the Lesson

Independent Practice: Students will respond to the review questions on page 11 using the restate and explain method of response.

Advanced Learners should create an archeological dig using an aluminum pan, sand, and 3 artifacts (choose various math manipulatives). Then present their dig to another advanced learner, who will carefully excavate the site while creating a site map.

Closure / Assessment: Selected students will share and discuss their responses to selected questions.

Reflection:

Integration with School-wide Focus: Improve Reading and Writing performance

Science Objectives

1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08

Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Essential Question

There are a variety of ways to gather observations that will help you form a hypothesis and obviously the more observations you can make the more likely it is that you will form a sound hypothesis. Create an organized process for gathering information that will enable an observer to carefully collect as many observations as possible.
(action plan)

Wayne County Schools 21st Century Instructional Lesson Plan

Can You Find The Peanut?

NAME:	Subject: Science
Date:	Grade Level (s): 6

Standards/ Objectives Addressed (NCSCOS)

1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08

Identify and create questions and hypotheses that can be answered through scientific investigations. * Develop appropriate experimental procedures for: • Given questions. • Student generated questions. * Analyze evidence to explain observations, make inferences and predictions. * Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. * Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Essential Question(s) (In student-friendly terms)

There are a variety of ways to gather observations that will help you form a hypothesis and obviously the more observations you can make the more likely it is that you will form a sound hypothesis. Create an organized process for gathering information that will enable an observer to carefully collect as many observations as possible. (action plan)

Assess (Look at student data to plan. Use formative and/ or summative assessments.)

Examine student readiness and mastery of the Scientific Method and process. Read and review a few "conclusions" from the last lab.

High Yield Instructional Strategies (check all that apply to the lesson)

Identifying similarities and differences	✓	Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	✓
Homework and practice							

Learner Diversity

- **How will you differentiate to meet the needs of all learners in your class?**

504 modifications ET and RA. Differentiated assignments and presentations will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)

- **Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.**

Today we will examine the process of observations and making observations.

Instructional Practices Used in this Lesson

Coaching	✓	**Providing Directions/ Instructions**	✓	**Learning Centers**	
Discussion	✓	**Providing opportunities for practice**	✓	**Teacher-directed Questions and Answers**	✓ ✓
Hands-on experiences	✓	**Direct Instruction**	✓	**Modeling**	✓
Presentation	✓	**Testing**	✓	Other: Science6.org	✓

Suggested brained-based learning activities promoting the above Instructional Practices

Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps		Student Facilitators		Movement	✓
Technology Integration	✓	Storytelling		Humor	
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning	✓
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment	✓	Drawing or illustrating		Other:	
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:	

Type(s) of Grouping Used:

_✓_small group _✓_student pairs _✓_whole group _✓_individual

Explain, Explore, Elaborate

Content Chunks: How will you divide and teach the content?

- **Transitions should be used every 5-15 minutes to keep the students' brains engaged.**
- **Involve students in an analysis of their explorations.**
- **Use reflective activities to clarify and modify student understanding.**
- **Give students time to think, plan, investigate and organize collected information.**
- **Give students the opportunity to expand and solidify their understanding of the concept and/ or apply it to a real-world situation.**

See next page for instructional detail.

Evaluate (Feedback/ Closure)

- **Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?**
- **Present students with a scoring guide (such as a rubric) at the beginning to self-assess.**
- **What assessment(s) will be used to be sure the students are successful?**

Students should share and discuss their ideas about "How could you tell the difference between 2 objects with virtually identical physical properties?"

Describe, Analyze, Reflect:

- **How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/ or remarks to support your view.**
- **What caused the lesson to go well? What challenges did you encounter?**
- **What did you do to contribute to the lesson's effectiveness?**
- **What learning did you take from this lesson to apply to future lessons? What would you do differently next time?**

Date: _____ Time Frame: 80 minutes
Subject: Science Grade 6 Date: _____

Can You Find The Peanut?

Essential Question: There are a variety of ways to gather observations that will help you form a hypothesis and obviously the more observations you can make the more likely it is that you will form a sound hypothesis. Create an organized process for gathering information that will enable an observer to carefully collect as many observations as possible. (action plan)

Objective (s) Numbers: **1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08**

Outcomes: Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Materials: peanuts (one per pair), balance, small paper clips

Anticipatory Set: Today we will examine the process of observations and making observations.

During the Lesson

Presentation of Information:

Integration of Other Subjects: Writing (Restating questions in declarative format)
Reading (prereading skills, vocabulary, dramatic presentation)

Integration of Reading: Reading for information and interpretation.

Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Review the Science Method of Inquiry. Discuss physical properties and observations. Today we will focus on the observation / inference step of the Science Method. Safety Warning! This activity involves peanuts. Peanut allergies are serious and dangerous. If you know of your allergy and have not reported it to the school - please report that allergy now.

Differentiation: 504 modifications ET and MA. Student and teacher modeling will help to guide all students to reach expected outcomes.

Presentation: http://www.science6.org/pdf/classroom/peanut.pdf

Guided Practice: Assist the students through each phase of the Science Method. Pay special attention to questions, observations / inferences.

After the Lesson

Independent Practice: Students will create an abstract to outline the Science Method as it applies to the strategies they used to find their peanut.

Advanced Learners should test third party identification on 10 third parties, then create a bar graph to display the results.

Closure / Assessment: Students should share and discuss their ideas about "How could you tell the difference between 2 objects with virtually identical physical properties?"

Reflection:

Integration with School-wide Focus: Improve Reading and Writing performance

Can You Find The Peanut?

- Materials:
  - bag of peanuts (apples if peanut allergy present)
  - balance and small paper clips for weights
- Introduction:
  - **Safety Warning**! This activity involves peanuts. Peanut allergies are serious and dangerous.
  - Review the Science Method.
    - The nature of today's activity will allow us to combine the Data and Analyze Data Steps.
  - Discuss the Observation Step of the Science Method of Inquiry.
    - Emphasize the importance of making observations and inferences.
- Lesson:
  - Give each pair of students a peanut and encourage them to record as many observations about the physical properties of their peanuts as possible. Encourage them to use the balance, draw pictures, count dents.
    - Any pair that alters their peanut in any way will immediately report to the "standard science" group and stop participating in this activity.
  - **Question**: Can objects be identified by carefully observing its physical properties?
  - **Observations / Inferences**: Students will record detailed observations about the peanut.
  - **Hypothesis**: Students restate and answer the question in an affirmative or negative response.
  - **Procedures**:
    - Peanuts are placed into a pile.
    - Students attempt to identify their peanut using its physical properties.
      - Arguing groups need to keep it civilized!
  - **Analyze Data**: Students record the properties that helped them to most easily identify their peanuts.
  - **Conclusions**:
    - Students state whether their hypothesis was proved or not proved.
    - Students discuss any problems that may have arisen.
    - Students write a sentence to discuss another experiment that this process leads them to want to try.
- Applications:
    - How could you tell the difference between 2 objects with virtually identical physical properties?

Science Objectives

1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08

Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Essential Question

Observations are used to make inferences. If you were limited to two types of observations, which 2 would you choose? Support your choice.

(decision making)

Wayne County Schools 21st Century Instructional Lesson Plan
Making Inferences

NAME:	Subject: Science
Date:	Grade Level (s): 6

Standards/ Objectives Addressed (NCSCOS)

1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08

Identify and create questions and hypotheses that can be answered through scientific investigations. * Develop appropriate experimental procedures for: • Given questions. • Student generated questions. * Analyze evidence to explain observations, make inferences and predictions. * Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. * Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Essential Question(s) (In student-friendly terms)

Observations are used to make inferences. If you were limited to two types of observations, which 2 would you choose? Support your choice. (decision making)

Assess (Look at student data to plan. Use formative and/ or summative assessments.)

Examine student readiness and mastery of the Scientific Method and process. Read and review a few "conclusions" from the last lab.

High Yield Instructional Strategies (check all that apply to the lesson)

Identifying similarities and differences	✓	Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	✓
Homework and practice							

Learner Diversity

- **How will you differentiate to meet the needs of all learners in your class?**

504 modifications ET and RA. Differentiated assignments and presentations will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)

- **Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.**

One of the most important aspects of the science method (or any subject) is your ability to infer ideas from data. Today we will use advertisements to make observations and inferences.

Instructional Practices Used in this Lesson

Coaching	✓	**Providing Directions/ Instructions**	✓	**Learning Centers**	
Discussion	✓	**Providing opportunities for practice**	✓	**Teacher-directed Questions and Answers**	✓ ✓
Hands-on experiences	✓	**Direct Instruction**	✓	**Modeling**	✓
Presentation	✓	**Testing**	✓	Other: Science6.org	✓

Suggested brained-based learning activities promoting the above Instructional Practices					
Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps		Student Facilitators		Movement	
Technology Integration	✓	Storytelling		Humor	
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning	✓
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment	✓	Drawing or illustrating	✓	Other:	
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:	

Type(s) of Grouping Used:
_✓_small group _✓_student pairs _✓_whole group _✓_individual

Explain, Explore, Elaborate
Content Chunks: How will you divide and teach the content?

- **Transitions should be used every 5-15 minutes to keep the students' brains engaged.**
- **Involve students in an analysis of their explorations.**
- **Use reflective activities to clarify and modify student understanding.**
- **Give students time to think, plan, investigate and organize collected information.**
- **Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.**

See next page for instructional detail.

Evaluate (Feedback/Closure)

- **Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?**
- **Present students with a scoring guide (such as a rubric) at the beginning to self-assess.**
- **What assessment(s) will be used to be sure the students are successful?**

Students will share their advertisements and the inferences they based the design on.

Describe, Analyze, Reflect:

- **How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.**
- **What caused the lesson to go well? What challenges did you encounter?**
- **What did you do to contribute to the lesson's effectiveness?**
- **What learning did you take from this lesson to apply to future lessons? What would you do differently next time?**

Date: _____ Time Frame: 80 minutes

Making Inferences

Essential Question: Observations are used to make inferences. If you were limited to two types of observations, which 2 would you choose? Support your choice. (decision making)

Objective (s) Numbers: **1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08**

Outcomes: Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Materials: Magazines, scissors, glue sticks, poster paper, colored pencils, markers or crayons

Preparation: Tell the students that they will need a magazine or two (2 or 3 days in advance of the lesson)

Anticipatory Set: One of the most important aspects of the science method (or any subject) is your ability to infer ideas from data. Today we will use advertisements to make observations and inferences.

During the Lesson

Presentation of Information:

Integration of Other Subjects: Writing (Restating questions in declarative format)
Reading (prereading skills, vocabulary, dramatic presentation)

Integration of Reading: Reading for information and interpretation.

Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Review the Science Method of Inquiry. Discuss advertising purposes, procedures and affects. Explain inferences and practice making inferences from basic observations.

Differentiation: 504 modifications ET and MA. Student and teacher modeling will help to guide all students to reach expected outcomes.

Presentation: http://www.science6.org/pdf/classroom/inferences.pdf

Guided Practice: Model the 3 steps of today's Lab: Observations, Inferences and Reporting, using a projected ad. Discuss the self created ad; purpose, content and desired outcome.

After the Lesson

Independent Practice: Students (in small groups) will complete the lab (3 observations and inferences for 3 ads). Groups will create an advertisement for an imaginary or mundane product.

Advanced Learners may want to create a 20 second radio commercial for their product.

Closure / Assessment: Students will share their advertisements and the inferences they based the design on.

Integration with School-wide Focus: Improve Reading and Writing performance

Inferences in Advertising

- Materials:
  - Magazine Advertisements (three or four)
    - if you can get them from different magazines - that is best
  - scissors, glue sticks, poster paper, colored pencils, markers or crayons
- Directions:
  - Read and follow the instructions for each step of the Activity.
  - Respond to questions with complete sentences that restate the question.
  - Attach your written work to this paper.
- Activity:
  - Observations:
    - What do you think is the purpose of the many advertisements that you see and hear?
    - What do you think the advertisers of products want you to infer from their ads?
  - Procedures:
    - Procedure / Experiment:
      - Examine 3 advertisements.
      - Record the most reasonable inference about the product being advertised.
      - Determine if you made the inference that the advertiser hoped you would.
        - (get a parent or friend to evaluate your data)
  - Data:
    - Copy and fill out the table.
    - Examine each of the advertisements and draw the most reasonable conclusions.

What do the advertisers want you to infer?

Add	Observations	Inferences

- Analysis:
  - Respond to each of the following in complete sentences that restates and answers the question.
    - Choose the most interesting ad and tell what emotion the advertiser tried to convey.
    - Did the advertiser successfully communicate their message?
- New Experiment:
  - You (and your group) will play advertising executive.
    - Select a product (or invent one)
    - Infer what population group should be targeted for advertising.
      - Who will buy your product?
      - Will they have enough money and power to make you rich?
    - Create an advertisement that will appeal to the target population.
    - Present your advertisement and see if your classmates can recognize your target population.

Science Objectives

1.01, 2.02

Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.

Essential Question

Due to limited funding, a team of scientists must choose one of the following 2 scenarios. Which scenario would you vote to attempt and why? (decision making) 1. Run a complete trial set (with repetition) for the vaccine against athlete's foot (including a proper control group and specifically isolated independent variable) or 2. Run a single trial of a cure for cancer on a small group of 5 cancer patients. (decision making)

Wayne County Schools 21st Century Instructional Lesson Plan

How Science Works

NAME:	Subject: Science
Date:	Grade Level (s): 6

Standards/ Objectives Addressed (NCSCOS)

1.01, 2.02
Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.

Essential Question(s) (In student-friendly terms)

Due to limited funding, a team of scientists must choose one of the following 2 scenarios. Which scenario would you vote to attempt and why? (decision making) 1. Run a complete trial set (with repetition) for the vaccine against athlete's foot (including a proper control group and specifically isolated independent variable) or 2. Run a single trial of a cure for cancer on a small group of 5 cancer patients.

Assess (Look at student data to plan. Use formative and/ or summative assessments.)

Examine student readiness and mastery grade level reading and evaluation. Students will need assistance and modeling to master the restate and answer format to complete evaluation assignments.

High Yield Instructional Strategies (check all that apply to the lesson)

Identifying similarities and differences	✓	Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning		Generating and testing hypotheses	✓
Homework and practice	✓						

Learner Diversity

- **How will you differentiate to meet the needs of all learners in your class?**

504 modifications ET and RA. Differentiated assignments and presentations will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)

- **Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.**

Today we will read about the application of the steps of the Scientific Method. You will learn some new principles including independent and dependent variables as well as the value of a constant.

Instructional Practices Used in this Lesson

Coaching	✓	**Providing Directions/ Instructions**	✓	**Learning Centers**	
Discussion	✓	**Providing opportunities for practice**	✓	**Teacher-directed Questions and Answers**	✓ ✓
Hands-on experiences		**Direct Instruction**	✓	**Modeling**	✓
Presentation	✓	**Testing**	✓	Other: Science6.org	✓

Suggested brained-based learning activities promoting the above Instructional Practices

Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps		Student Facilitators		Movement	
Technology Integration	✓	Storytelling		Humor	
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning	✓
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment	✓	Drawing or illustrating		Other:	
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:	

Type(s) of Grouping Used:

_✓_small group _✓_student pairs _✓_whole group _✓_individual

Explain, Explore, Elaborate

Content Chunks: How will you divide and teach the content?

- **Transitions should be used every 5-15 minutes to keep the students' brains engaged.**
- **Involve students in an analysis of their explorations.**
- **Use reflective activities to clarify and modify student understanding.**
- **Give students time to think, plan, investigate and organize collected information.**
- **Give students the opportunity to expand and solidify their understanding of the concept and/ or apply it to a real-world situation.**

See next page for instructional detail.

Evaluate (Feedback/ Closure)

- **Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?**
- **Present students with a scoring guide (such as a rubric) at the beginning to self-assess.**
- **What assessment(s) will be used to be sure the students are successful?**

Learners will share the response to the "Experimental Procedures Activity" that they feel was the most likely to be correct.

Describe, Analyze, Reflect:

- **How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/ or remarks to support your view.**
- **What caused the lesson to go well? What challenges did you encounter?**
- **What did you do to contribute to the lesson's effectiveness?**
- **What learning did you take from this lesson to apply to future lessons? What would you do differently next time?**

Date: _____ Time Frame: 80 minutes

Scientific Problem Solving

Essential Question: Due to limited funding, a team of scientists must choose one of the following 2 scenarios. Which scenario would you vote to attempt and why? (decision making) 1. Run a complete trial set (with repetition) for the vaccine against athlete's foot (including a proper control group and specifically isolated independent variable) **or** 2. Run a single trial of a cure for cancer on a small group of 5 cancer patients.

Objective (s) Numbers: **1.01, 2.02**

Outcomes: Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.

Materials: Textbook pages 12-18, Presentation CD

Anticipatory Set: Today we will read about the application of the steps of the Scientific Method. You will learn some new principles including independent and dependent variables as well as the value of a constant.

During the Lesson

Presentation of Information:

Integration of Other Subjects: Writing (Restating questions in declarative format)
Reading (prereading skills, vocabulary, dramatic presentation)

Integration of Reading: Reading for information and interpretation.

Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Review and define the lesson vocabulary: independent and dependent variables and the constant. Use author's craft as a prereading strategy.

Differentiation: 504 modifications ET and MA. Student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Popcorn styled reading of the Science Passage with occasional breaks for further discussion and illustration.

After the Lesson

Independent Practice: Students will respond to the review questions on page 18 using the restate and explain method of response.

Advanced Learners should work in cooperative learning groups to determine an apporpriate control for various experiments. (see attachment/transparency)

Closure / Assessment: Selected students will share their responses to selected questions. Advanced learners will share the response to the "Experimental Procedures Activity" that they feel was the most likely to be correct.

Integration with School-wide Focus: Improve Reading and Writing performance

Experimental Procedures Activity

Choose 4 "questions" below and consider what the independent variable, dependent variable, constants and control experiment would be for the procedures portion of The Scientific Method of Inquiry.

Example -

"Does sugar dissolve faster in hot water or cold water?"

Independent: Water Temperature

Dependent: Elapsed Time for sugar to dissolve.

Constants: Amount of water, amount of sugar, no stirring.

Control: Time how long it takes to dissolve sugar in water that is at room temperature (75^{o}).

Questions:

Will a nail rust faster after being coated with an acidic liquid (high ph) or a base liquid (low ph).

Will exercise raise a person's blood pressure?

Which of the primary colors attracts and holds the most solar energy?

Will chewing wintergreen lifesavers actually make sparks in my mouth?

How many hours of studying should be done to prepare for a test?

Do chemicals like aspirin act differently when heat is present?

Which lubricant (Graphite or WD40) will enable the fastest speeds in a standard soap box derby car?

Which frequency of light will produce the best plant (lawn) growth, red, green or blue?

Which plant fertilizer (Miracle Grow or Dyna-Grow) will give the better results when applied to a fern?

Can Pepsi, Coke and RC Cola be identified in a blind taste test?

What liquid causes hands to wrinkle the fastest?

How does the size of a pumpkin compare to the number of seeds in it?

How do different types of music affect blood pressure?

Which ingredient causes the least amount of change in chocolate chip cookies?

Is the strength of a magnet affected by extreme heat and extreme cold?

What happens to raisons that are placed in a glass of 7-up?

Do fans really cool you off during the hot weather?

Science Objectives

1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08

Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Essential Question

What steps would you need to take to set up and maintain a neighborhood compost pile?

(action plan)

Wayne County Schools 21st Century Instructional Lesson Plan
Making Inferences

NAME:	Subject: Science
Date:	Grade Level (s): 6

Standards/ Objectives Addressed (NCSCOS)

1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08

Identify and create questions and hypotheses that can be answered through scientific investigations. * Develop appropriate experimental procedures for: • Given questions. • Student generated questions. * Analyze evidence to explain observations, make inferences and predictions. * Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. * Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.

Essential Question(s) **(In student-friendly terms)**

What steps would you need to take to set up and maintain a neighborhood compost pile? (action plan)

Assess **(Look at student data to plan. Use formative and/ or summative assessments.)**

Examine student readiness and mastery of the Scientific Method and process. Read and review a few "conclusions" from the last lab.

High Yield Instructional Strategies (check all that apply to the lesson)

Identifying similarities and differences	✓	Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	✓
Homework and practice							

Learner Diversity

- **How will you differentiate to meet the needs of all learners in your class?**

504 modifications ET and RA. Differentiated assignments and presentations will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)

- **Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.**

Today we will discuss and define composting and review the steps of Scientific Problem Solving. While our special focus will be on independent and dependent variables, we will examine constants and the use of a control experiment.

Instructional Practices Used in this Lesson

Coaching	✓	**Providing Directions/ Instructions**	✓	**Learning Centers**	
Discussion	✓	**Providing opportunities for practice**	✓	**Teacher-directed Questions and Answers**	✓ ✓
Hands-on experiences		**Direct Instruction**	✓	**Modeling**	✓
Presentation	✓	**Testing**	✓	Other: Science6.org	✓

Suggested brained-based learning activities promoting the above Instructional Practices					
Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps		Student Facilitators		Movement	
Technology Integration	✓	Storytelling		Humor	
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning	✓
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment	✓	Drawing or illustrating	✓	Other:	
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:	

Type(s) of Grouping Used:
_✓_small group _✓_student pairs _✓_whole group _✓_individual

Explain, Explore, Elaborate
Content Chunks: How will you divide and teach the content?

- **Transitions should be used every 5-15 minutes to keep the students' brains engaged.**
- **Involve students in an analysis of their explorations.**
- **Use reflective activities to clarify and modify student understanding.**
- **Give students time to think, plan, investigate and organize collected information.**
- **Give students the opportunity to expand and solidify their understanding of the concept and/ or apply it to a real-world situation.**

See next page for instructional detail.

Evaluate (Feedback/ Closure)

- **Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?**
- **Present students with a scoring guide (such as a rubric) at the beginning to self-assess.**
- **What assessment(s) will be used to be sure the students are successful?**

Selected students will share their analyze data and conclusion paragraphs of the abstract.

Describe, Analyze, Reflect:

- **How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/ or remarks to support your view.**
- **What caused the lesson to go well? What challenges did you encounter?**
- **What did you do to contribute to the lesson's effectiveness?**
- **What learning did you take from this lesson to apply to future lessons? What would you do differently next time?**

Date: _____ Time Frame: 80 minutes

Scientific Problem Solving - Composting

Essential Question:	What steps would you need to take to set up and maintain a neighborhood compost pile? (action plan)
Objective (s) Numbers:	**1.01, 1.02, 1.04, 1.05, 1.06, 1.07, 1.08**
Outcomes:	Identify and create questions and hypotheses that can be answered through scientific investigations. *Develop appropriate experimental procedures for: • Given questions. • Student generated questions. *Analyze evidence to explain observations, make inferences and predictions. *Prepare models and/or computer simulations to: • Test hypotheses. • Evaluate how data fit. *Use oral and written language to: • Communicate findings. • Defend conclusions of scientific investigations.
Materials:	Virtual Lab - 1, Lab Worksheet
Anticipatory Set:	Today we will discuss and define composting and review the steps of Scientific Problem Solving. While our special focus will be on independent and dependent variables, we will examine constants and the use of a control experiment.

During the Lesson

Presentation of Information:	
Integration of Other Subjects:	Writing (Creating an abstract. Summarizing Data. Drawing Conclusions) Math (Creating a table, Organizing Data, Using Percents)
Integration of Reading:	Create, read and interpret tables, vocabulary
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Review and define independent and dependent variables and the constant. Have students try to identify the independent and dependent variables and the constant in the composting experiment.
Differentiation:	504 modifications ET and MA. Student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice:	Work together to create the question, observation, hypothesis, procedure and data steps of the scientific problem solving. Assist the students toward understanding their responsibilities in the analyze data and drawing conclusions phases of the experiment.

After the Lesson

Independent Practice	Students will write the analyze data and conclusion paragraphs of the abstract. **Advanced Learners** should be able to determine the control, constants, independent and dependent variables for the "next" experiment that they have declared in the conclusions section of their abstracts.
Closure / Assessment:	Selected students will share their analyze data and conclusion paragraphs of the abstract.

Integration with School-wide Focus: Improve Reading and Writing performance

Compost Efficiency				
Brown/Green	**Water**	**Turns**	**Efficiency**	**# of Days until Compost is Ready**
50%	25%	*0		
50%	25%	1		
50%	25%	2		
50%	25%	4		
50%	25%	8		
50%	50%	*0		
50%	50%	1		
50%	50%	2		
50%	50%	4		
50%	50%	8		
*Control for the experiment				

Compost Efficiency				
Brown/Green	**Water**	**Turns**	**Efficiency**	**# of Days until Compost is Ready**
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50%	25%	8		
50%	50%	*0		
50%	50%	1		
50%	50%	2		
50%	50%	4		
50%	50%	8		
Control for the experiment				

Science Objectives

1.01, 2.02

Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.

Essential Question

At least as far back as the Greek philosopher, Plato, humans have known and declared that "NECESSITY IS THE MOTHER OF INVENTION - Dire situations inspire ingenious solutions. If worse comes to worst, people will apply all their imagination and skill to deal with the problem." This being historically true, we look at one of the most dire problems facing mankind today - energy for the 21st Century. As many of you know, the world is probably going to run out of oil during your lifetime. This energy will be replaced by an alternate source. The question is, should we do something about it now - before it is truly a dire need - or wait and solve the problem when it becomes a dire need?

(decision making)

Wayne County Schools 21st Century Instructional Lesson Plan
Science, Engineering and Technology

NAME:	Subject: Science
Date:	Grade Level (s): 6

Standards/ Objectives Addressed (NCSCOS)

1.01, 2.02

Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.

Essential Question(s) (In student-friendly terms)

At least as far back as the Greek philosopher, Plato, humans have known and declared that "NECESSITY IS THE MOTHER OF INVENTION - Dire situations inspire ingenious solutions. If worse comes to worst, people will apply all their imagination and skill to deal with the problem." This being historically true, we look at one of the most dire problems facing mankind today - energy for the 21st Century. As many of you know, the world is probably going to run out of oil during your lifetime. This energy will be replaced by an alternate source. The question is, should we do something about it now - before it is truly a dire need - or wait and solve the problem when it becomes a dire need? (decision making)

Assess (Look at student data to plan. Use formative and/ or summative assessments.)

Examine student readiness and mastery grade level reading and evaluation. Students will need assistance with evaluation procedures.

High Yield Instructional Strategies (check all that apply to the lesson)

Identifying similarities and differences	✓	Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning		Generating and testing hypotheses	✓
Homework and practice	✓						

Learner Diversity

- **How will you differentiate to meet the needs of all learners in your class?**

504 modifications ET and RA. Differentiated assignments and presentations will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)

- **Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.**

Today we will learn how we use Science and Technology in many ways every day. With your peer partner, create a T-table to show examples of what you currently consider Science and Technology.

Instructional Practices Used in this Lesson

Coaching	✓	**Providing Directions/ Instructions**	✓	**Learning Centers**	
Discussion	✓	**Providing opportunities for practice**	✓	**Teacher-directed Questions and Answers**	✓ ✓
Hands-on experiences		**Direct Instruction**	✓	**Modeling**	✓
Presentation	✓	**Testing**	✓	Other: Science6.org	✓

Suggested brained-based learning activities promoting the above Instructional Practices

Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps		Student Facilitators		Movement	
Technology Integration	✓	Storytelling		Humor	
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning	✓
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment	✓	Drawing or illustrating		Other:	
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:	

Type(s) of Grouping Used:

_✓_small group _✓_student pairs _✓_whole group _✓_individual

Explain, Explore, Elaborate

Content Chunks: How will you divide and teach the content?

- **Transitions should be used every 5-15 minutes to keep the students' brains engaged.**
- **Involve students in an analysis of their explorations.**
- **Use reflective activities to clarify and modify student understanding.**
- **Give students time to think, plan, investigate and organize collected information.**
- **Give students the opportunity to expand and solidify their understanding of the concept and/ or apply it to a real-world situation.**

See next page for instructional detail.

Evaluate (Feedback/ Closure)

- **Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?**
- **Present students with a scoring guide (such as a rubric) at the beginning to self-assess.**
- **What assessment(s) will be used to be sure the students are successful?**

Learners may want to research prototypes. They should "Google" the term and learn as much about prototypes as possible. Then, choose 10 everyday pieces of technology from hammers to cars. For each piece they should consider whether the manufacturer needed a prototype before production and if so, what type of prototype was most likely used (computer simulation, scale model, full sized working prototype or a combination).

Describe, Analyze, Reflect:

- **How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/ or remarks to support your view.**
- **What caused the lesson to go well? What challenges did you encounter?**
- **What did you do to contribute to the lesson's effectiveness?**
- **What learning did you take from this lesson to apply to future lessons? What would you do differently next time?**

Date: _____ Time Frame: 80 minutes

Science, Engineering and Technology

Essential Question: At least as far back as the Greek philosopher, Plato, humans have known and declared that "NECESSITY IS THE MOTHER OF INVENTION - Dire situations inspire ingenious solutions. If worse comes to worst, people will apply all their imagination and skill to deal with the problem." This being historically true, we look at one of the most dire problems facing mankind today - energy for the 21st Century. As many of you know, the world is probably going to run out of oil during your lifetime. This energy will be replaced by an alternate source. The question is, should we do something about it now - before it is truly a dire need - or wait and solve the problem when it becomes a dire need? (decision making)

Objective (s) Numbers: **1.01, 2.02**

Outcomes: Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.

Materials: Textbook pages 20-25, Presentation CD

Anticipatory Set: Today we will learn how we use Science and Technology in many ways every day. With your peer partner, create a T-table to show examples of what you currently consider Science and Technology.

During the Lesson

Presentation of Information:

Integration of Other Subjects: Writing (Restating questions in declarative format)
Reading (prereading skills, vocabulary, dramatic presentation)

Integration of Reading: Reading for information and interpretation.

Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Review and define the lesson vocabulary: scientist, engineer, constraint and prototype.

Differentiation: 504 modifications ET and MA. Student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Use the passage to find and define the vocabulary terms. Use author's craft procedures to determine what the author has spent extra money on and therefore what will be the most important aspects of the passage. Popcorn styled reading of the Science Passage with occasional breaks for further discussion and illustration.

After the Lesson

Independent Practice: Students will respond to the review questions on page 25 using the restate and explain method of response.

Advanced Learners may want to research prototypes. They should "Google" the term and learn as much about prototypes as possible. Then, choose 10 everyday pieces of technology from hammers to cars. For each piece they should consider whether the manufacturer needed a prototype before production and if so, what type of prototype was most likely used (computer simulation, scale model, full sized working prototype or a combination).

Closure / Assessment: Selected students will share and discuss their responses to selected questions.

Integration with School-wide Focus: Improve Reading and Writing performance

Science Objectives

1.01, 2.02

Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.

Essential Question

What steps do you think should be taken to ensure that a person is prepared for examination on a set of skills?

(action plan)

Wayne County Schools 21st Century Instructional Lesson Plan
The Nature of Science and Technology Review and Assessment

NAME:	Subject: Science
Date:	Grade Level (s): 6

Standards/ Objectives Addressed (NCSCOS)

1.01, 2.02
Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.

Essential Question(s) **(In student-friendly terms)**

What steps do you think should be taken to ensure that a person is prepared for examination on a set of skills? (action plan)

Assess **(Look at student data to plan. Use formative and/ or summative assessments.)**

Assess the series of review and evaluation materials that the students have produced during this unit. Pay special attention to areas of weakness or poor understanding.

High Yield Instructional Strategies (check all that apply to the lesson)

Identifying similarities and differences		Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking		Cooperative learning		Generating and testing hypotheses	
Homework and practice	✓						

Learner Diversity

- **How will you differentiate to meet the needs of all learners in your class?**

504 modifications ET and RA. Differentiated assignments and presentations will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)

- **Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.**

During our studies of this chapter we have discussed the differences between science, applied science and technology. We have examined the Scientific Method and practiced its application and we have learned about engineering and its applications to our daily lives. Today we will review and compile this information so that we will be better able to retain it for a long period of time.

Instructional Practices Used in this Lesson

Coaching	✓	**Providing Directions/ Instructions**	✓	**Learning Centers**	
Discussion	✓	**Providing opportunities for practice**	✓	**Teacher-directed Questions and Answers**	✓ ✓
Hands-on experiences		**Direct Instruction**	✓	**Modeling**	✓
Presentation	✓	**Testing**	✓	Other: Science6.org	✓

Suggested brained-based learning activities promoting the above Instructional Practices					
Think-Pair-Share		Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps		Student Facilitators		Movement	
Technology Integration		Storytelling		Humor	
Use of visuals		Field Trips(Virtual)		Project/Problem- Based Learning	
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment	✓	Drawing or illustrating		Other:	
Writing/Reflecting/Journals		Simulations/Role Play		Other:	

Type(s) of Grouping Used:
___small group _✓_student pairs _✓_whole group _✓_individual

Explain, Explore, Elaborate
Content Chunks: How will you divide and teach the content?

- **Transitions should be used every 5-15 minutes to keep the students' brains engaged.**
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- **Use reflective activities to clarify and modify student understanding.**
- **Give students time to think, plan, investigate and organize collected information.**
- **Give students the opportunity to expand and solidify their understanding of the concept and/ or apply it to a real-world situation.**

See next page for instructional detail.

Evaluate (Feedback/ Closure)

- **Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?**
- **Present students with a scoring guide (such as a rubric) at the beginning to self-assess.**
- **What assessment(s) will be used to be sure the students are successful?**

Assignment # 22 should be made into a poster and selected posters will be displayed.

Describe, Analyze, Reflect:

- **How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/ or remarks to support your view.**
- **What caused the lesson to go well? What challenges did you encounter?**
- **What did you do to contribute to the lesson's effectiveness?**
- **What learning did you take from this lesson to apply to future lessons? What would you do differently next time?**

Date: _____ Time Frame: 80 minutes

The Nature of Science and Technology Review

Essential Question:	What steps do you think should be taken to ensure that a person is prepared for examination on a set of skills? (action plan)
Objective (s) Numbers:	**1.01, 2.02**
Outcomes:	Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.
Materials:	Textbook pages 4 - 31
Anticipatory Set:	During our studies of this chapter we have discussed the differences between science, applied science and technology. We have examined the Scientific Method and practiced its application and we have learned about engineering and its applications to our daily lives. Today we will review and compile this information so that we will be better able to retain it for a long period of time.

During the Lesson

Presentation of Information:	
Integration of Other Subjects:	Writing (Restating questions in declarative format)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Review and discuss page 29. Help the students to see the connections between applied sciences, technology and engineering.
Differentiation:	504 modifications ET and MA. Student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice:	Discuss the instructions for the review on pages 30-31. Help the students to see the importance of validating their answers. Discuss the previous year's EOG weakness in Cognition, discuss the steps that we took to make improvements and implore them not to allow these improvements to slip.

After the Lesson

Independent Practice	Students will complete the review on pages 30-31 (1-22)
Closure / Assessment:	Assignment # 22 should be made into a poster and selected posters will be displayed.

Integration with School-wide Focus: Improve Reading, Writing and Math performance. Focus on Cognition (6th grade area of weakness 2006)

Date: _____ Time Frame: 80 minutes

The Nature of Science and Technology Assessment

Essential Question: If you could press restart, what would you do differently to prepare for today's exam? (decision making)

Objective (s) Numbers: **1.01, 2.02**

Outcomes: Use information systems to: Identify scientific needs, human needs, or problems that are subject to technological solution. Locate resources to obtain and test ideas.

Materials: Textbook pages 4 - 31

Anticipatory Set: During our studies of this chapter we have discussed the differences between science, applied science and technology. We have examined the Scientific Method and practiced its application and we have learned about engineering and its applications to our daily lives. Today you will be assessed on your knowledge of these objectives.

During the Lesson

Presentation of Information:

Integration of Other Subjects: Writing (evaluation)

Integration of Reading: Reading for information and interpretation.

Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling:

Differentiation: 504 modifications ET and MA. Student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Discuss and correct the review from pages 30-31. Clarify any confusion.

After the Lesson

Independent Practice: Assign the EOG style assessment on pages 32-33.

Closure / Assessment: The students will write a performance assessment paragraph. The paragraph should discuss the effectiveness of their studies during each of the phases of the presentation of this material. 1. Prereading/Author's Craft 2. Reading of the Selection 3. Review Exercises 4. Lab Participation 5. Rate your performance on this exam.

Integration with School-wide Focus: Improve Reading, Writing and Math performance. Focus on Cognition (6th grade area of weakness 2006)