



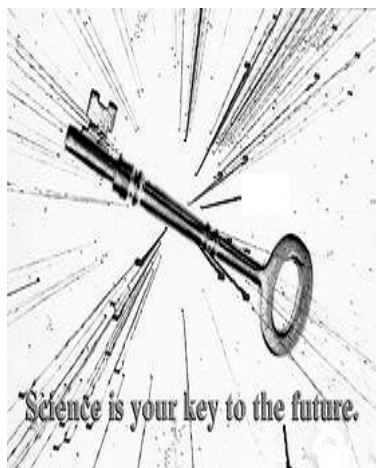
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# *New Haven Public Schools*

**TO: HIGH SCHOOL CIA**

**FROM:** Richard Therrien

**DATE:** Jan 22, 2007

**RE: HIGH SCHOOL CIA AGENDA**

1) Discuss Q2 Assessments, instructions, questions, concerns. Timeline

2) Yale-New Haven Teachers Institute & Introduction of new Yale Community Science rep. Other Program: Peabody, etc..

3) Overall lesson expectations: Learning Objectives, Written Plan, Thinking/Group/Writing Activities, geared towards INQs, and standards

4) CAPT Science Prep Plan:  
Writing Samples  
Experiment Practice: (Acid Rain, Yeast, Reaction) in Feb.  
9th Grade: Practice Test?  
10th-11th Grade: CAPT Review In Feb.  
Q3 Assessment Preview

5) Sample "Experimentation Skills" Lesson

6) Curriculum Work: Power Standards and order (Grade groups give feedback)

Thank you.

Richard Therrien

Cc:

Quarter Two Assessment TimeLine:

Nov 7: Sample STS/Experimentation Questions

Nov 29<sup>th</sup> CIA: work on standards/ sample multiple choice questions

Dec 22: 1<sup>st</sup> deadline for submitting sample questions

Jan 9: Draft copy of Q2 assessments

Jan 16<sup>th</sup>: Finalized Q2 assessments:

<http://www.richtherm.net/newhavenscience/tests/index.htm>

Jan 1-Jan 25 Teachers complete STS/Lab activities

Jan 19<sup>th</sup>: Preslugged scantrons handed out

Jan 22<sup>nd</sup>-Jan 28<sup>th</sup> Give Q2 assessments, along with midterm exams

Feb 2 Teachers return scantrons with corrected essays to Richard Therrien

Feb 15? Results (with item analysis) available at <http://data> from NHPS computers

SCIENCE CAPT PREP PLAN 06-07

For Tenth Grade teachers. (Biology).

Jan 22<sup>nd</sup>: High School CIA meeting with K-12 Science Supervisor

Review`-Science CAPT like quarterly assessments.

-Model Lesson for teaching experimental design. To be taught as a full class session the week of Feb 28<sup>th</sup>.

-Writing Prompt techniques.

-Content Review ( Earth/Physical Science Topics)

Jan 29<sup>th</sup> – Feb 16<sup>th</sup>

In 10<sup>th</sup> grade science classes:

Teachers: Finish State Science Content strands D36-D45.

PRACTICE open ended science questions on all strands:

2 a week, review rubrics with students

(Sample 8 questions with rubrics provided by supervisor?)

Feb 26<sup>th</sup> High School CIA meeting with K-12 Science Supervisor Go over content review

Feb 26<sup>th</sup> – March 2<sup>nd</sup> In 10<sup>th</sup> grade science classes:

Deliver experimental design lesson. (1 period) (9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup> grade)

Complete required CAPT embedded task: yeast growth

Review practice inquiry questions based on task (taken from Quarter 3 science assessment). (3 periods)

Use sample outlines to deliver content review of strands D1 – D26 from ninth grade. ( 1period) (10<sup>th</sup>, 11<sup>th</sup> grade)

Science teachers will be focusing on preparation for Science CAPT:

-experimental design/inquiry

- open ended response

- content strand instruction.

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9<sup>th</sup> grade: Continue with required content strands, embedded tasks

Deliver experimental design lesson

Optional use of ninth grade practice test

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11<sup>th</sup> grade Feb 26<sup>th</sup> – March 2<sup>nd</sup>

Deliver experimental design lesson

Deliver content review

**Goals:**

1. Students will improve their ability to design and conduct science experiments. (INQ3)
2. Students will be able to identify and use the concepts of dependent variables, independent variables, and controlled variables. (INQ4)

**Levels of Inquiry:**

Description	Level
Structured Inquiry	Lowest
Guided Inquiry	
Student-Directed Inquiry	
Student Research	Highest

**Sample Task:**

**Bouncing Ball/Falling Post It**

Students are given a ball, a meter stick, and masking tape. (Post its and stopwatch)

Give pairs of students a few minutes to bounce the balls. Ask them to:

1. Observe carefully
2. Think of things related to bouncing that they already know
3. Begin thinking of questions they might have

Teacher leads a discussion of the following (one at a time) and records on chart paper or on the board:

1. What did you observe?
2. What do you already know about things that bounce?
3. What questions do you have?

Teacher asks pairs of students to take a minute or two to discuss and identify a question that they would like to attempt to answer.

Teacher distributes packet titled “Our Scientific Investigation of ....”.

# **Our Scientific Investigation of**

Names: \_\_\_\_\_ Date: \_\_\_\_\_  
\_\_\_\_\_

**What do you already know about this topic?**

**What is a question that you would like to answer?**

**Things we can change (or vary) on purpose (*Independent Variable*)**

Write descriptions on sticky notes of things you can change (or vary) on purpose. Write one thing per sticky note. Place the sticky notes in the squares.

**Other things we can measure or observe (*Dependent Variable*)**

Write descriptions on sticky notes of other things you can measure or observe. Write one thing per sticky note. Place the sticky notes in the squares.

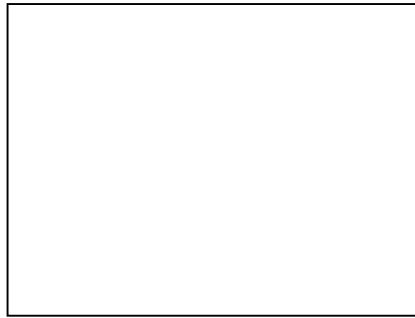
**What is the question you and your partner would like to answer? (You may have changed your mind about the question since the last time you wrote it)**

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# Choosing Variables

We will intentionally change



(Choose one sticky note from the Independent Variable list)

We will measure as the result



(Choose one sticky note from the Dependent Variable list)

We will NOT change any these factors so that we can conduct a fair test  
(controlled variables)

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# **Ask The Same Question A Different Way**

## **Choosing Variables/Properties**

**I will change: (INDEPENDENT VARIABLE)**



**I will measure as the result: (DEPENDENT VARIABLE)**



**I will not change (so that it is fair): ('CONTROLLED')**

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**I will not measure:**

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# Asking a Question and Making a Prediction

When I change: **(INDEPENDENT VARIABLE)**

*what I will change*

what will happen to: **(DEPENDENT VARIABLE)**

*what I will measure*

**Write out the question you will investigate:**

When I change

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,

what will happen to

---

?

*Note: This can be stated as a hypothesis instead of a prediction if you have prior experiences or observations.*





# Hypothesis = Educated Guess

Before doing the experiment, discuss with your partner what you think the answer to your question will be based on things you already know.

We think that as we change the \_\_\_\_\_

in this way \_\_\_\_\_,  
(independent variable)

the \_\_\_\_\_  
(dependent variable)

will change in this way \_\_\_\_\_.

We think this will happen because \_\_\_\_\_

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Can you *hypothesize* (make an educated guess) what the photographer actually saw?

educated guess)  
actually saw?

# **The Design of Our Experiment**

Scientists write a complete description of their experiments so that they can repeat the experiment and so that others can read their report and try it for themselves.

The *INDEPENDENT VARIABLE*:

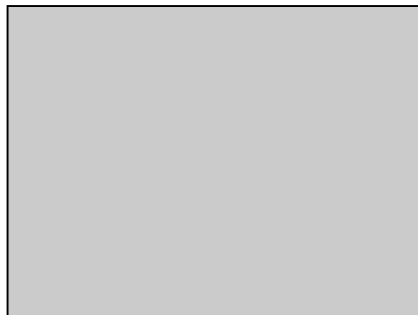


List of Materials We Will Use:

What we will do (steps of our investigation):

Number of times we will repeat the steps  
(to help us see if we are being consistent): \_\_\_\_\_

What we will measure or observe (the *DEPENDENT VARIABLE*):



# Data Collection

When we changed \_\_\_\_\_,  
we measured how it affected \_\_\_\_\_.

Sample data collection chart:

What we changed on purpose (Independent Variable) (include units of measure if appropriate)	What happened (Dependent Variable) (include units of measure if appropriate)			
	Trial 1	Trial 2	Trial 3	Average Of Trials



Do you have questions about how to make tables?

# Graph of the Data

All graphs have a title.

## Sample Graph

**What happened?  
(dependent variable)**

**Include units of  
measure as needed**



**What we changed  
on purpose  
(independent variable)**

**Include units of  
measure as needed**

# Are There Patterns in the Data?

When we purposely changed

(independent variable)

we observed that

(dependent variable)

changed in the following way:

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Use your data to support your answer:

We know this because \_\_\_\_\_

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# **Conclusion**

Write a paragraph that summarizes your experiment. You should include statements about each of the following in this order:

1. Write the question you decided to investigate.
2. Write a sentence or two explaining what you did.
3. Write a sentence or two describing what you found out by doing the experiment. Be sure to describe the data and patterns you found.
4. Write an answer to your question and describe how you know. Also explain whether or not your hypothesis was correct.
5. Explain why your results are valid and reliable.

## **Word Bank**

You should be sure to use these words in your conclusion:

Independent variable  
Dependent variable  
Fair test  
Hypothesis  
Data  
Pattern  
Valid

## **The Next Thing I Want To Know**

When scientists conduct experiments, new questions usually come into their mind. Did it happen with you?

**The next thing that I want to know is:**

9<sup>th</sup>:

Properties of Matter: D10,11,12

Carbon & Polymers: D13,14,15,16,17

Cycles: D19,20 (Water/carbon)

Energy: D1,D2,D3

Electricity: D4, D5, D6, D7

Energy Sources: D18,25,26

Environmental: D22,23,24

10<sup>th</sup>

Characteristics of Living Things/Chemistry of Life (C5)

Biochemistry/Enzymes: D29, 27,28,30

Heredity: D34, D35, 36, 37, 38

Evolution: D40,D41,D42

MicroOrganism/Disease: D31,32,33,39

Population/BioDiversity: D43,44,45

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Organisms/Systems

11<sup>th</sup>

Chemistry

chemicals/physical/chemical change

mixtures/solutions

atomic structure

periodic table

electron structure

bonding

compounds

reactions/equations

ratios/moles

reactions

acids/bases

gas laws

nuclear