

## MLK Jr. Early College Teacher Lesson Plan

**Teacher: Davis**

**Standard / Assessment Framework:**  
State Standard 1/ACT standards

Subject/Grade: APES 10th	Unit/ Essential Questions: How does a scientist think?	Topic: Termite investigation	Date: 8/26	Period: 2,3,5,6,7
<b>Objectives</b>	<b>Content Objectives:</b> SWBAT identify a question to investigate, gather and analyze data from an investigation.  SWBAT communicate their understanding of scientific thinking.		<b>Language Objectives:</b> Students will design and evaluate a scientific investigation of termite behavior.	
	<b>Connections</b>	<b>Materials (including Supplementary and Adapted):</b> (for each pair of students) <ol style="list-style-type: none"> <li>1. Termite</li> <li>2. Set of three pens</li> <li>3. blank paper</li> <li>4. soft brush</li> </ol>	<b>Key Vocabulary:</b> (Strategies,Thinking Maps question Gather information Observe Experiment Evidence Explanation INQUIRY	<b>Matrix/College Connections:</b>
		<b>Higher Level Thinking and Avid Strategies:</b> Evaluation Collaboration Peer review	<b>Connections to Embedded Assessments and Depth of Knowledge:</b> <b>Knowledge</b>	<b>Homework:</b>

### Lesson Sequence

5 - 10 minutes	In:  Write down three words that describe how a scientist thinks. (Allow students to share their responses)							
60-70 Minutes	Through:  <ol style="list-style-type: none"> <li>1. Explain Francesco Redi's discovery that maggots in bad meat come from fly eggs not from the meat. He questioned the accepted knowledge, gathered information through observations (flies were around meat) and experiment (covering the meat) Used evidence to explain things. Use all of the key vocabulary above in the explanation.</li> <li>2. Have students form groups of two of their own choosing and give initial directions (see flipchart)</li> <li>3. Explain how to handle the termite.</li> <li>4. Hand-out termites and give groups 5 minutes to write down their observations.</li> <li>5. Instruct students to write a possible explanation for the termites behavior</li> <li>6. Students should design and conduct and experiment to test if their hypothesis is correct following the template below.</li> </ol>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Differentiation</td> </tr> <tr> <td style="text-align: center;">Groups work at their own pace</td> </tr> <tr> <td style="text-align: center;">Acceleration</td> </tr> <tr> <td style="text-align: center;">Complete activity without design template</td> </tr> <tr> <td style="text-align: center;">Complete a second investigation</td> </tr> <tr> <td style="text-align: center;">Remediation</td> </tr> </table>	Differentiation	Groups work at their own pace	Acceleration	Complete activity without design template	Complete a second investigation	Remediation
Differentiation								
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Remediation								

5 Minutes

Out:  
What did you learn about termite behavior? What further questions do you have?

## Thinking Like an Animal Behavior Scientist

### Directions

1. On your blank sheet of paper create a diagram like the one displayed on the board using all three pens. Make your diagram large.
2. Get a termite and carefully place it on your diagram. Observe your termite for **5 minutes**. Record your observations in the box provided.
3. As you make your observations, record questions you have as you watch your termite.
4. Choose one question that you and your partner would like to find an answer to.
5. Create a hypothesis that you and your partner want to investigate. Remember, your hypothesis is a prediction and should answer your question.
6. Work with your partner to create a method for testing your hypothesis. Record the steps you will take in the methods section. Your test should take no longer than 5 minutes.
7. Do your test and record your observations/data in the evidence collected box.
8. Based on the evidence collected, answer the questions in the conclusion box.
9. If we were to study the termites for a longer amount of time, what more would you do? Answer this question in the future directions box.

**\*It is important to keep all your lab materials together. Be careful to not mix your pens up with another group. At the end of the lab, make sure all materials are together for the next class.**

## Thinking Like an Animal Behavior Scientist

Names: \_\_\_\_\_ Period: \_\_\_\_\_

### Observations:

- 1.
- 2.
- 3.
- 4.
- 5.

### Questions:

- 1.
- 2.
- 3.
- 4.
- 5.

### Hypothesis:

**Methods** (How will you collect evidence to support your hypothesis?):

**Evidence collected** (What happened in your investigation?):

### Conclusion :

Was your hypothesis supported by your investigation?

Would you change your hypothesis? Why or why not?

### Future Directions:

What would you do next to continue building your understanding of termite behavior?

## Thinking Like an Animal Behavior Scientist

Names: \_\_\_\_\_ Peer Graders: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Peer Assessment:

#### Observations and Questions:

- \_\_\_ includes at least 6 observations and 6 questions
- \_\_\_ observations are detailed and avoid the obvious
- \_\_\_ no questions start with "Why"
- \_\_\_ questions could be answered in a scientific investigation

#### Hypothesis and Methods:

- \_\_\_ hypothesis is a prediction
- \_\_\_ hypothesis directly answers the question
- \_\_\_ methods section is detailed enough that you understand exactly what the researchers did
- \_\_\_ methods are repeatable (you could do exactly what the researchers did without them being there to tell you what to do)

#### Evidence Collected, Conclusions and Future Directions:

- \_\_\_ all questions are answered in detail
- \_\_\_ evidence collected relates to the hypothesis
- \_\_\_ conclusion explains if the data supports the hypothesis
- \_\_\_ future directions are related to the information already gathered and show thought

#### Total:

\_\_\_/12

Comments:

## Thinking Like an Animal Behavior Scientist

Group reflection:

1. How would you change your investigation based on the feedback from your peer score?
2. Which section did you do best in? Why do you think you did best here?
3. In your group, who would you say is the best in each section?

Observations and Questions:

Hypothesis and Methods:

Evidence collection and Conclusion:

4. Which section do you need the most improvement in? What could you do to improve?