Name: _____ Date: _____

Myth Busters - Square Wheels

This TV program tests various scientific ideas or myths. Jamie and Adam carry out large scale science projects to prove or disprove their hypotheses. We can learn a lot about designing an experiment from the Myth Busters.

Remember that when we design and conduct an experiment, there are several parts.

- Question: What is the purpose of the investigation or what is the question we want to answer?
- Hypothesis: Predict the results of your investigation by using previous scientific knowledge and/or research.
- Design Planning: Although this part doesn't usually go in a final report, as you design the experiment keep in mind that you can only change one variable at a time. What variable will you change (independent variable)? What variables will you keep constant? What is your control? What variable would you observe (dependent variable) and compare to your control?
- Materials: List of materials and equipment you will need
- Procedure: Step by step instructions on how the experiment is to be carried out so you could recreate it.
- Observations: Record the results of the experiment, quantitatively and qualitatively, include graphs/tables
- Analysis/Discussion: Explain the results of the investigation
- Conclusion: State whether the experiment was able to answer the question.
- Sources of Error: What could cause mistakes in the results of your observations? How would it affect your results? What recommendations would you make to improve this experiment for next time?
- Application: How is this useful to our everyday life?

Watch this episode of the show and complete the questions below. Note, Myth Busters are following a design experiement process.

Part 1 - Driving with square wheels. (0-11 min. of video)

1) Question: What question are the myth busters wondering?

2) Hypothesis: What do the myth busters think will happen?

3) Planning:
   a) What is the independent variable (the one they want to change)?

   b) What are the variables they don't change?

   c) What is the control?

   d) What variable will be observed (dependent variable)?

4) Materials: What materials and equipment did they use?

5) Procedure: Write step by step instructions the myth busters did so that if you had to recreate this

you could.

6) Observations: Sketch the graphs from the experiment.

7) Analysis: What do the graphs tell us?

8) Conclusion: Answer the question the Myth Busters asked at the beginning of the show.

Part II - Smooth out the Ride (11- 17 min. of video)

1) Source of Error: What happened in Part 1 that prematurely ended their experiment? What affect might this have had on their conclusion? What recommendations are Adam and Jamie making for future experiments?

Small Scale Testing

2) Question: What question do they want to answer?

3) Hypothesis: What do they think will happen?

4) Planning:
a) What is the independent variable (the one they want to change)?

Name: _____ Date: _____

b) What are the variables they don't change?

c) What is the control?

d) What variable will be observed (dependent variable)?

5) Materials: What materials did they use?

6) Observations: Explain what was observed?

Large Scale Testing

7) Jamie and Adam take their knowledge from the shop outside. Did it work - what did the data reveal? Explain what happened.

8) Conclusion: What did Jamie and Adam conclude about square wheels?

Part 3 - Up the Hill (17 - 24 min. of video)

1) Question: What do the myth busters want to answer now?

2) Hypothesis: What do the myth busters think might happen?

3) Planning:
   a) What is the independent variable (the one they want to change)?
   b) What are the variables they don't change?

Name: _____ Date: _____

c) What is the control?

d) What variable will be observed (dependent variable)?

4) Procedure: Write step by step instructions the myth busters did so that if you had to recreate this you could.

5) Observations: What was measured?

6) Conclusions: What did Adam and Jamie conclude about their question in this Part 3?

Part 4 - Aftershow http://dsc.discovery.com/tv-shows/mythbusters/videos/square-wheels.htm

1) Applications: Why was Jamie wondering if square wheels would work? In what real life situation might this be useful?