

DUE: _____

Science and Transportation

8th Physical Science Final Project

We have covered many things this year and it is time to put your scientific brains to the test. A scientist's number one weapon is problem solving and being able to collect data to learn more about our world so that improvement can be made. In this project you will be required to do all three of these things.

DUE
DATES

Requirements:

1) Choose a mode of transportation (car, boat, plane, hot air balloon)

2) Research the history of this mode of transportation and write TWO 5-sentence paragraphs about the History.

3) Research and write ONE 5-sentence paragraph explaining the science behind how this vehicle works.

4) Design and Draw a model of the vehicle that uses every day materials (rubber bands, balloons, tissue paper, glue etc...) to stay in motion for at least 1 minute. Every minute over is 5 points of extra credit. (IDEAS: rubber band powered, mousetrap, spring, balloon powered, etc...)

5) Write a manual as to how to build your vehicle with step by step instructions so that anyone could read it and build the same vehicle.

6) Build your vehicle

7) TEST it at least 5 times each time having 3 trials (a total of 15 trials)

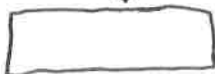
a. Each test must show the data of 3 trials and the averages of that data.

b. Each test must have a "notes" section explaining what isn't perfect and what could be fixed.

c. Fix it and retest to get the best vehicle.

8) Draw your final model.

9) Final Test -- Vehicle must move ON ITS OWN for 1 min!



DUE DATE:

9) Write TWO 5-sentence Conclusion/reflection paragraphs about: (20 points)

- The biggest challenge you encountered (I will not accept "no challenges"). Everyone had a challenge of some sort so write about it.
- What you would do differently if you had unlimited resources to use.
- The biggest lesson you learned from this project.
- The most interesting fact or idea you gained as knowledge in this project about your vehicle.

GRADING RUBRIC!!!

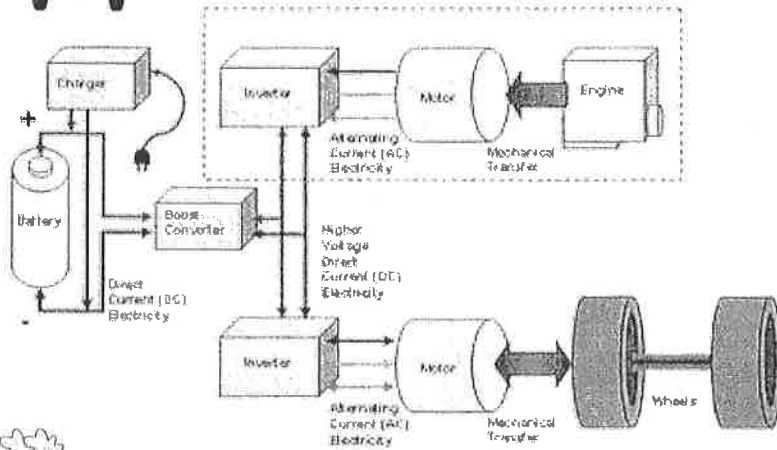
NAME: _____

History Paragraphs	0	5	6	7	8	9	10	≈7.7%		
Science Paragraph	0	5	6	7	8	9	10	≈7.7%		
Initial Drawing with labels	0	5	6	7	8	9	10	≈7.7%		
Manual	0	10	15	17	18	19	20	≈15.4%		
Test 1 data (With notes)	0	5	6	7	8	9	10	≈7.7%		
Test 2 data (With notes)	0	5	6	7	8	9	10	≈7.7%		
Test 3 data (With notes)	0	5	6	7	8	9	10	≈7.7%		
Test 4 data (With notes)	0	5	6	7	8	9	10	≈7.7%		
Test 5 data (With notes)	0	5	6	7	8	9	10	≈7.7%		
Final Drawing with Labels	0	5	6	7	8	9	10	≈7.7%		
ACTUAL TEST TIME	0 (no vehicle)	10 (0 seconds)	14 (1-5 seconds)	15 (6-10 seconds)	17 (11-20 seconds)	18 (21-30 seconds)	19 31-40	20 41-60	≈15.4%	
<u>CONCLUSION/REFLECTION</u> /20								TOTAL	150	100%

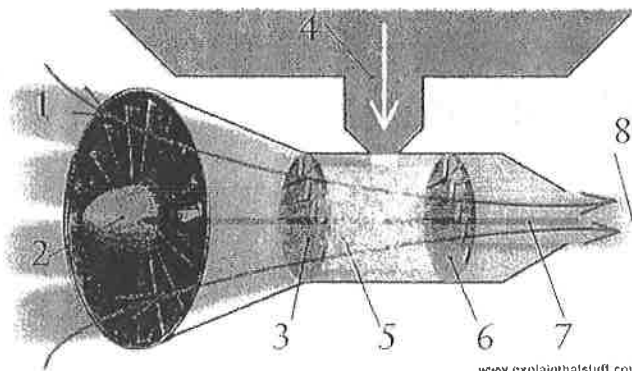
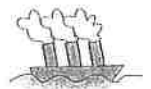
How Vehicles Work



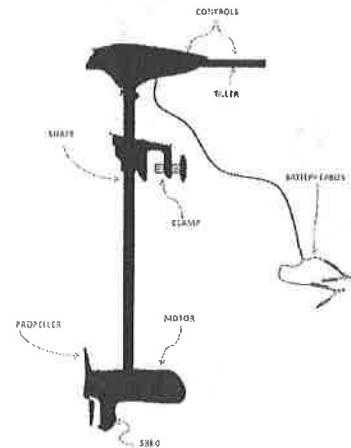
Cars



Boats



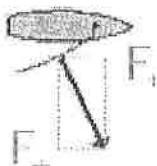
www.explainthatstuff.com



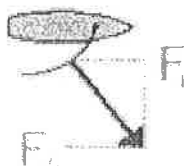
SAILS:

{W}{I}{N}{D}

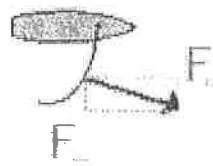
Case A

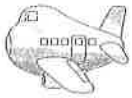


Case B



Case C

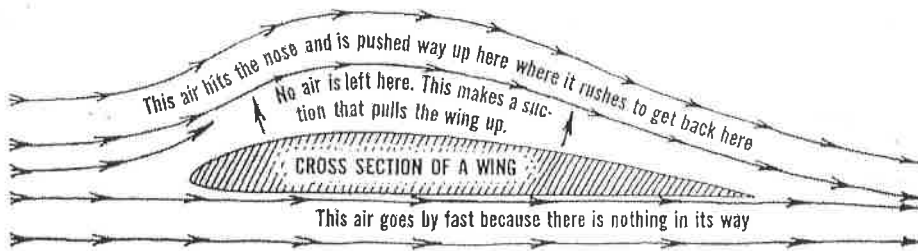




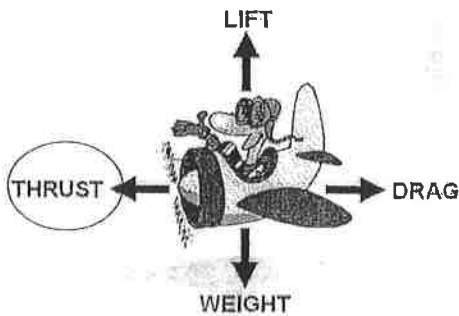
Airplanes



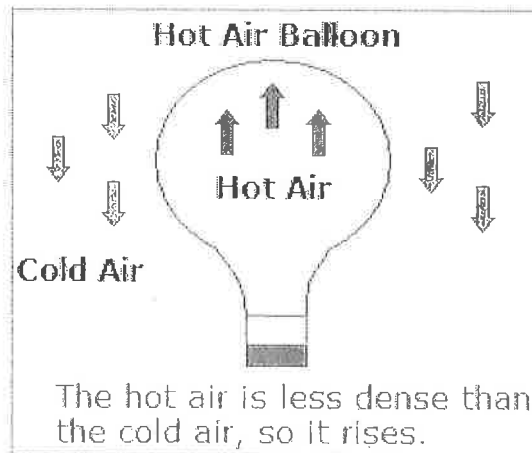
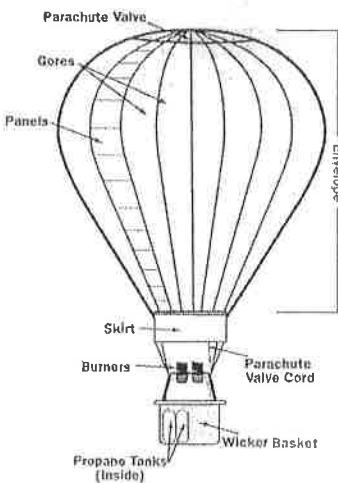
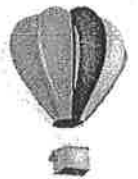
This is the way air goes over a wing.



A wing has to move through the air at a certain speed before it will lift and fly. This is called flying speed.



Hot Air Balloons



EXAMPLE OF TEST DATA ORGANIZATION:

	TRIAL 1 TIME	TRIAL 2 TIME	TRIAL 3 TIME	AVG TIME	Improvements needed
<u>TEST #1</u>					
<u>TEST #2</u>					
<u>TEST #3</u>					
<u>TEST #4</u>					
<u>TEST #5</u>					

