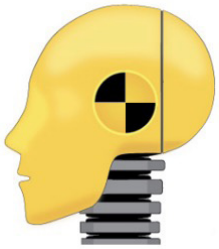
STUDENT ACTIVITY

Name: _____ Class: _____ Date: _____

CRASH SCIENCE IN THE CLASSROOM

NOT YOUR AVERAGE [CRASH TEST] DUMMY

Activity Sheet 1 – Crash Science Lesson



Part 1 – Introduction to Crash Test Dummies

1. In your own words, what is a crash test dummy?

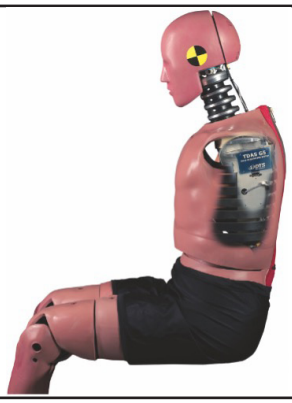
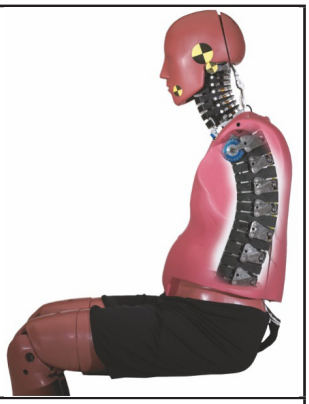
2. How are the 3 crash test dummies illustrated below alike?

3. How are they different?

4. In your own words, what does the term "biofidelity" mean?

5. Use the information provided by your teacher to complete the chart below.

Table 1. Three Main Types of Crash Test Dummies

Crash test dummies			
Name of dummy			
Date originally developed			
Average cost			

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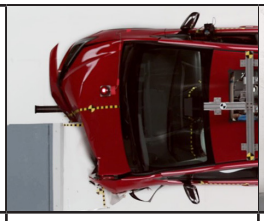
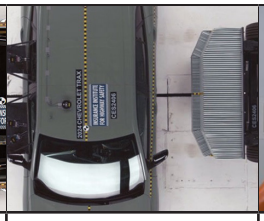
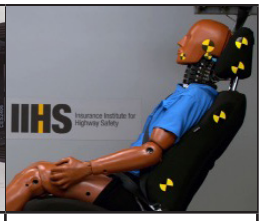
Part 2 –Types of Crash Tests that Use Dummies

6. Use the information provided by your teacher to complete the chart below.

Table 2. Four Main Types of Crash Tests

Crash testa				
Name of test				
Test Description (% overlap, speed of impact, angle of impact, size of barrier)				

7. Why do you think the IIHS conducts different types of crash tests instead of just one type of test?

8. Which of these four types of crashes do you think results in the greatest number of fatalities each year?

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Part 3 –Sizes of Dummies Used in Crash Tests

9. Use the information provided by your teacher to complete the chart below.

Table 3. Hybrid III Crash Test Dummy Sizes

Hybrid III crash test dummies		
Percentile size ranking (based on US adult population data in the 1970s)		
Gender (based on US adult population data in the 1970s)		
Predicted height (feet/inches)		
Predicted weight (pounds)		
Actual height (feet/inches)		
Actual weight (pounds)		

10. Based on the images provided, how do the sizes of these two types of Hybrid III frontal crash test dummies compare?

11. After your teacher explains the percentile size of each dummy and whether its size was based on adult female or male height and weight data, enter your predictions regarding the height and weight of each dummy.

12. Next, record the actual height and weight of each dummy provided by your teacher.

13. Do you think these height and weight estimates based on sizes of the population of US adults in the 1970s are still accurate today? Why or why not?

Part 4 –Dummy Type, Size, and Placement in Crash Tests

14. Use the information provided by your teacher to complete the chart below

Table 4. Hybrid III Crash Test Dummy Sizes

CRASH TEST TYPE	FRONTAL MODERATE OVERLAP	FRONTAL SMALL OVERLAP	SIDE IMPACT	REAR IMPACT
Year started				
Modifications made in test				
Driver seat	50th percentile male Hybrid III	50th percentile male Hybid III	5th percentile female SID-IIs	50th percentile male BioRID-II
Right front passenger seat				
Second row left seat passenger				

15. Which type of crash test has been conducted the longest?

16. Which type of crash test is the newest?

17. Why do you think second dummies have been added in the passenger seats for frontal and side crash tests?