



# Heavy Backpacks

## Grade Levels: 4-6

### Background

Doctors say it isn't healthy for students to carry more than ten percent of their weight in their backpacks. It requires energy to lift the books off of the ground.

### Question

Are the students in your school carrying too much weight in their backpacks?

### Possible Hypothesis

Students are/are not carrying too much weight in their backpacks.

### Materials

- Weight scale

### Procedure

1. Make a chart with the names of all the students in your class, as shown.
2. Weigh all of the students in your class and calculate ten percent of their weight. Record this on the chart.
3. Weigh all of the student backpacks before they go home every day for a week. Record the weights on the chart.
4. Circle the backpacks that are overweight.

### Analysis and Conclusion

How many students in the class carry overweight backpacks? Is it a major problem? Talk to your classmates and teacher about ways to remedy the problem.

Student Name	Weight	10% of Weight	Weight of Backpacks				
			M	T	W	T	F
<i>Sarah</i>	80	8	10	7	12	8	9
<i>Jorge</i>	100	10	5	6	12	5	9
<i>May</i>	65	6.5	10	9	12	9	10

### Real World Connection

What if you have to carry extra books? How can you reduce the amount of energy required to lift your books?