

a WOW Lab

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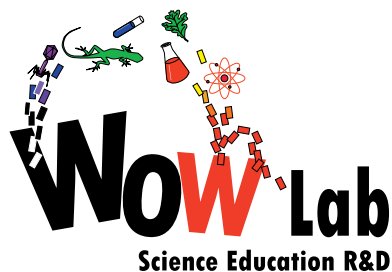
Polymer Bouncy Balls

Student Handout

In the following handout, students will be required to:

- Make predictions about which type or size of ball will bounce higher
- Record results of testing the balls with the ball jump
- Create bar graphs of the results

Provided in this document are sample answers (pages 2-6) and a blank handout (pages 7-11). The blank handout should be made available to each student or group prior to the activity.



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Polymer Bouncy Balls - Handout Answers

Student Handout - Answers

Predictions

Bouncy balls were made from two different polymers. Which type of ball do you think will bounce higher? Circle your prediction.

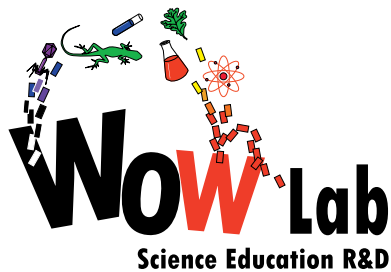
Latex ball

PVA/cornstarch ball

Latex balls were made in two different sizes. Which size of ball do you think will bounce higher? Circle your prediction.

Small Latex ball

Large Latex ball



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Polymer Bouncy Balls - Handout Answers

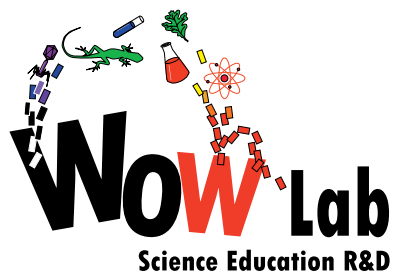
Observations

Below is an example of a filled-in observation table. The class may choose to test all of the balls made or one from each student/group. Here, ten balls of each type were tested. The data recorded in the table will be used to construct a bar graph.

Use the table below to record your observations from the bouncy ball testing. As each ball clears a certain height, check off that height in the table.

PVA/Cornstarch Balls

		Height Cleared					
		10 cm	20 cm	30 cm	40 cm	50 cm	60 cm
Ball Number	1	✓	✓	✓			
	2	✓	✓	✓			
	3	✓	✓				
	4	✓	✓	✓			
	5	✓	✓				
	6	✓	✓				
	7	✓	✓	✓			
	8	✓	✓				
	9	✓	✓				
	10	✓	✓	✓			



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Polymer Bouncy Balls - Handout Answers

Small Latex Balls

		Height Cleared					
		10 cm	20 cm	30 cm	40 cm	50 cm	60 cm
Ball Number	1	✓	✓	✓	✓		
	2	✓	✓	✓	✓	✓	
	3	✓	✓	✓	✓	✓	
	4	✓	✓	✓	✓	✓	✓
	5	✓	✓	✓	✓	✓	
	6	✓	✓	✓	✓	✓	✓
	7	✓	✓	✓	✓	✓	
	8	✓	✓	✓	✓	✓	
	9	✓	✓	✓	✓	✓	
	10	✓	✓	✓	✓	✓	✓

Results

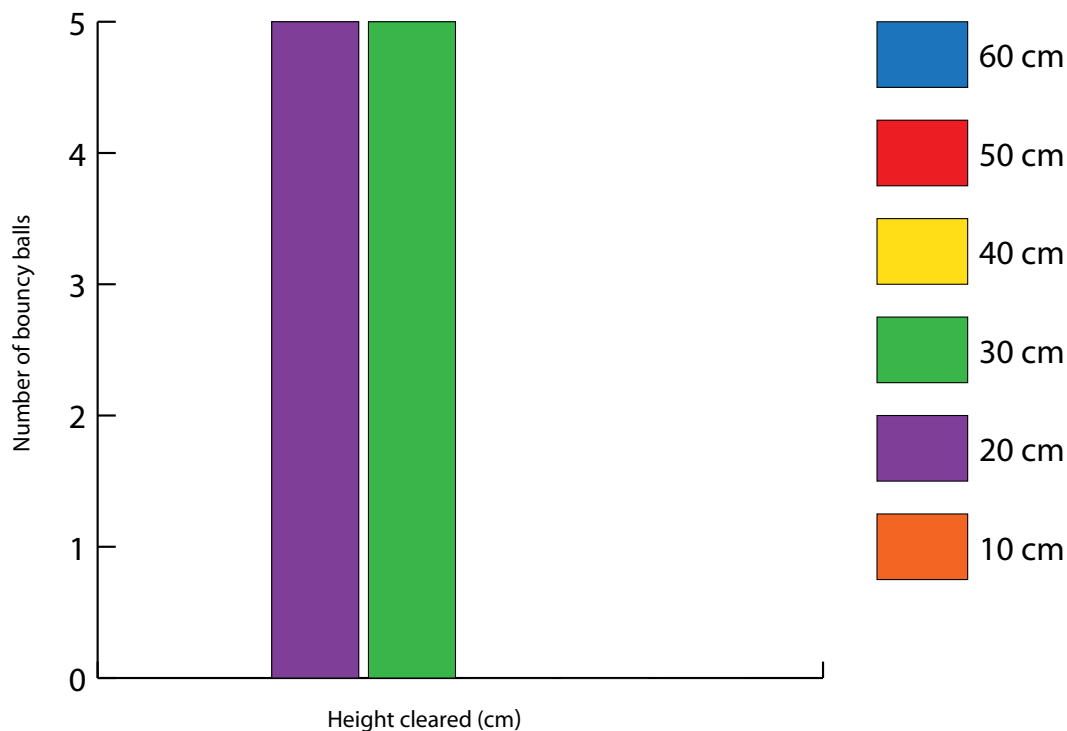
Organize the data from the observation tables into the following table by counting the number of balls that fall into a given interval. For example, if five of the PVA/cornstarch balls cleared a height of 30 cm, enter the number 5 under the 30 cm heading.

Use the data in the two results tables below to create a bar graph for each type of ball, latex and PVA/cornstarch.

The tables have been filled in with sample data:

PVA/Cornstarch Balls						
Height cleared	10 cm	20 cm	30 cm	40 cm	50 cm	60 cm
Number	0	5	5	0	0	0

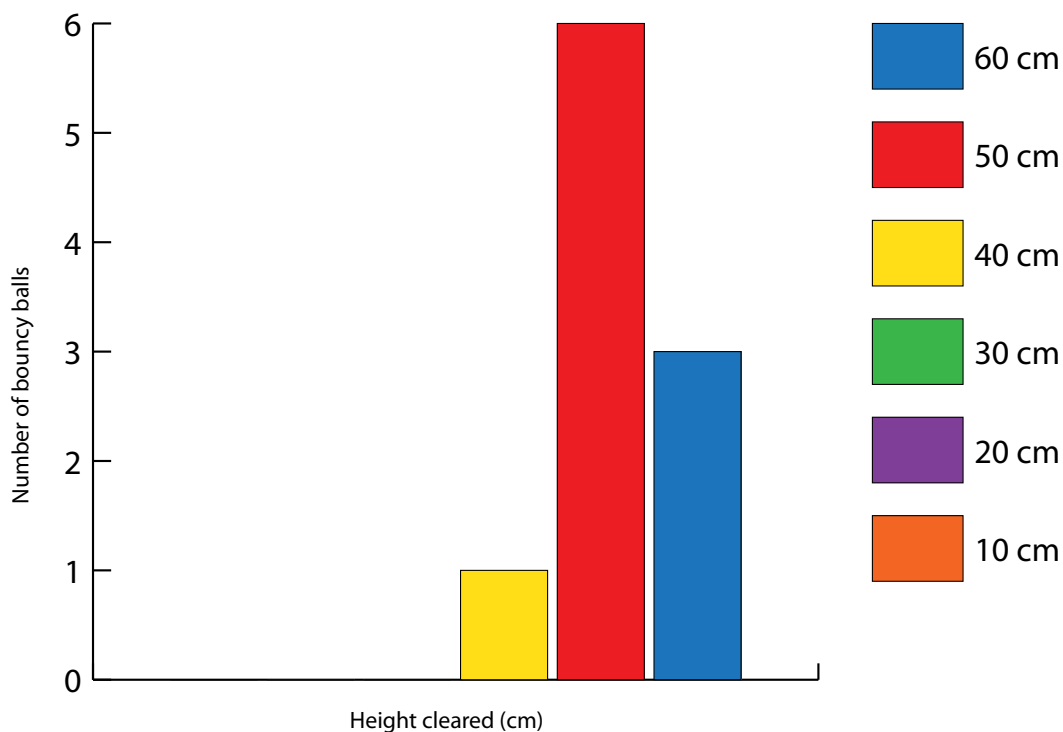
Figure 1. PVA/Cornstarch balls - Sample Graph



Polymer Bouncy Balls - Handout Answers

Small Latex Balls						
Height cleared	10 cm	20 cm	30 cm	40 cm	50 cm	60 cm
Number	0	0	0	1	6	3

Figure 2. Small Latex balls - Sample Graph





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Polymer Bouncy Balls - Student Handout

Student Handout

Predictions

Bouncy balls were made from two different polymers. Which type of ball do you think will bounce higher? Circle your prediction.

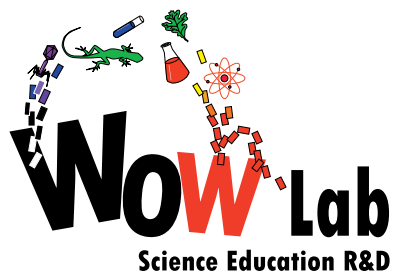
Latex ball

PVA/cornstarch ball

Latex balls were made in two different sizes. Which size of ball do you think will bounce higher? Circle your prediction.

Small Latex ball

Large Latex ball



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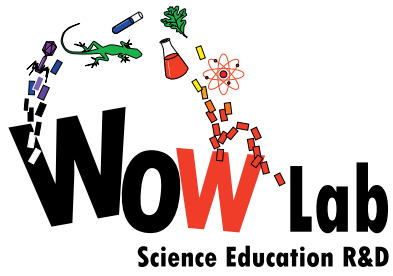
Polymer Bouncy Balls - Student Handout

Observations

Use the table below to record your observation from the bouncy ball testing. As each ball clears a certain height, check off that height in the table.

PVA/Cornstarch Balls

		Height Cleared					
		10 cm	20 cm	30 cm	40 cm	50 cm	60 cm
Ball Number	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						



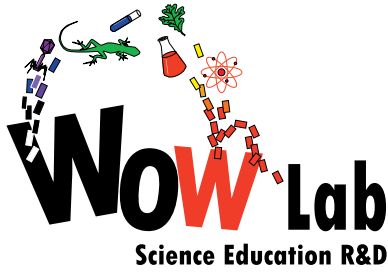
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Polymer Bouncy Balls - Student Handout

Small Latex Balls

		Height Cleared					
		10 cm	20 cm	30 cm	40 cm	50 cm	60 cm
Ball Number	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						



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Polymer Bouncy Balls - Student Handout

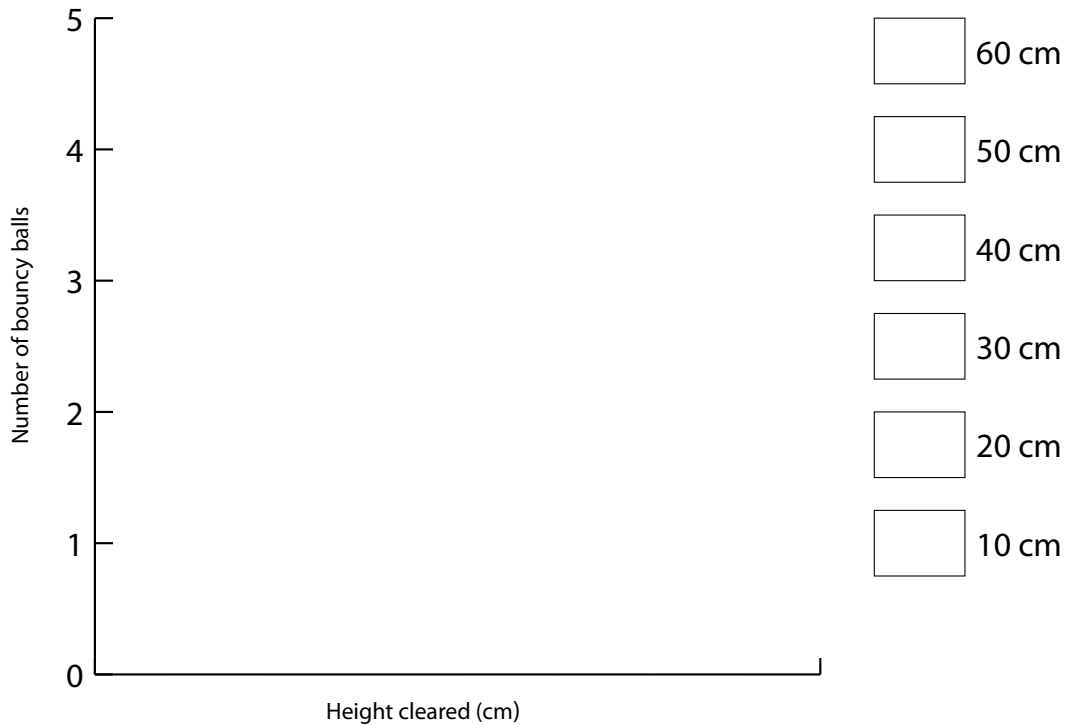
Results

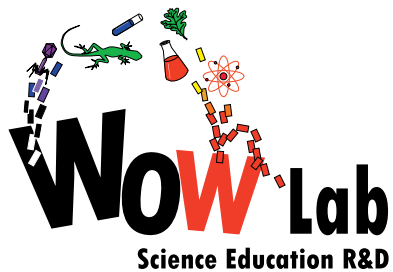
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Use the data in the two results tables below to create a bar graph for each type of ball, latex and PVA/cornstarch.

PVA/Cornstarch Balls						
Height cleared	10 cm	20 cm	30 cm	40 cm	50 cm	60 cm
Number						

Figure 1. PVA/Cornstarch balls - Sample Graph





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Polymer Bouncy Balls - Student Handout

Small Latex Balls						
Height cleared	10 cm	20 cm	30 cm	40 cm	50 cm	60 cm
Number						

Figure 2. Small Latex balls - Sample Graph

