



Who has the juiciest apple?

The students of the seventh class are doing a school excursion in the mountains. Bahri and Sandra got wrapped apples as supplies from their mothers. Both don't like the bitter skin, so their apples are peeled. Sandra's mother however has cut her the peeled apple in addition into bite-sized pieces.

During the day the temperature rises to 35°C in the shade. Who is going to have the juiciest apple in the afternoon?

Task:

- Formulate a hypothesis for the stated problem.
- Afterwards plan an experiment that verifies your hypothesis.
- Write down your results in your trial protocol and display them there in an appropriate diagram of your choice.
- You may note especially the significance of the size of the apple surface.

Accomplish your goal:

Additional help and instructions can be found on the tablet computer

Start with the guide on the tablet computer, if you need any help!



Experiment report: Who has the juiciest apple?

Name: _____

Group members:

Date: _____

Problem:		
Hypothesis:		
Material:	<ul style="list-style-type: none">• 2 apples (one variety)• 1 cutting board• 1 knife• 1 stop-watches	<ul style="list-style-type: none">• 1 scale• 2 petri dishes (or saucers, aluminum foil, ...)• 1 hair dryer or drying cabinet
Experimental setup: (Sketch)		



Experimental procedure:	
Observation: (data)	
Diagramme:	



Interpretation: (Data analysis)	
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What was difficult?



Experiment report: Who has the juiciest apple?

Name: _____

Group members:

Date: _____

Problem:	Bahri and Sandra have different sized cut apples. Who can enjoy most likely a juice apple in the afternoon?	
Hypothesis	If the apple is cut into bite-sized pieces, then the apple is lighter than the apple that is not cut.	
Material:	<ul style="list-style-type: none"> • 2 apples (one variety) • 1 cutting board • 1 knife • 1 stop-watches 	<ul style="list-style-type: none"> • 1 scale • 2 petri dishes (or saucers, aluminum foil, ...) • 1 hair dryer or drying cabinet
Experimental setup: (Sketch)		



Experimental procedure:	<ul style="list-style-type: none"> • Peel two roughly equal apples • Apple 1: Put the peeled apple on a petri dish on the scale and dry the apple with the hair dryer for 8 minutes. Every minute the display weight on the scale is noted. • Apple 2: Cut the peeled apple into bite-sized pieces, place them on a petri dish on the scale and dry them with a hair dryer for 8 minutes. Every minute the display weight on the scale is noted. 																																
Observation: (data)	<ul style="list-style-type: none"> • The peeled whole apple 1 gets slightly brownish while drying. • The peeled apple pieces of apple 2 turn brown and shrivel while drying. <p>The following weight has been displayed on the scale:</p> <table border="1" data-bbox="509 869 1434 1256"> <thead> <tr> <th rowspan="2">Time (in minutes)</th> <th colspan="2">Weight (in gram)</th> </tr> <tr> <th>Peeled</th> <th>Peeled, cut into pieces</th> </tr> </thead> <tbody> <tr><td>0</td><td>160</td><td>158</td></tr> <tr><td>1</td><td>158</td><td>154</td></tr> <tr><td>2</td><td>155</td><td>148</td></tr> <tr><td>3</td><td>154</td><td>146</td></tr> <tr><td>4</td><td>153</td><td>143</td></tr> <tr><td>5</td><td>151</td><td>139</td></tr> <tr><td>6</td><td>149</td><td>138</td></tr> <tr><td>7</td><td>149</td><td>138</td></tr> <tr><td>8</td><td>149</td><td>138</td></tr> </tbody> </table>	Time (in minutes)	Weight (in gram)		Peeled	Peeled, cut into pieces	0	160	158	1	158	154	2	155	148	3	154	146	4	153	143	5	151	139	6	149	138	7	149	138	8	149	138
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Diagramme:	<p style="text-align: center;">Weight change of the apples</p> <table border="1" data-bbox="509 869 1434 1256"> <thead> <tr> <th>Time (in minutes)</th> <th>Peeled (Weight in gram)</th> <th>Peeled, cut into pieces (Weight in gram)</th> </tr> </thead> <tbody> <tr><td>0</td><td>160</td><td>158</td></tr> <tr><td>1</td><td>158</td><td>154</td></tr> <tr><td>2</td><td>155</td><td>148</td></tr> <tr><td>3</td><td>154</td><td>146</td></tr> <tr><td>4</td><td>153</td><td>143</td></tr> <tr><td>5</td><td>151</td><td>139</td></tr> <tr><td>6</td><td>149</td><td>138</td></tr> <tr><td>7</td><td>149</td><td>138</td></tr> <tr><td>8</td><td>149</td><td>138</td></tr> </tbody> </table>	Time (in minutes)	Peeled (Weight in gram)	Peeled, cut into pieces (Weight in gram)	0	160	158	1	158	154	2	155	148	3	154	146	4	153	143	5	151	139	6	149	138	7	149	138	8	149	138		
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**Interpretation:**
(Data analysis)

- The chopped peeled apple has lost more weight than the whole peeled apple in the observation.
- The chopped peeled apple has a larger surface area over which the water can evaporate.

→ Bahri has the juicier apple in the afternoon because his apple lost less water than Sandras' apple.