



Results

Survey 65929

Number of records in this query:	26
Total records in survey:	26
Percentage of total:	100.00%





Field summary for ID 2013-01

ID 2013-01. Jet and film.

A thin water jet is impacting on a soap film. Investigate how the jet interacts with the film as a function of relevant parameters.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	26.92%
2 (2)	6	23.08%	
3 (3)	6	23.08%	23.08%
4 (4)	5	19.23%	
5 (5)	8	30.77%	50.00%
No answer	0	0.00%	
Arithmetic mean	3.5		
Standard deviation	1.27		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-03

ID 2013-03. Twisted Rope.

Consider a rope hold horizontally on its two ends. Twist one of its ends. At some point rope will form a helix or a loop. Investigate and explain the phenomenon.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	30.77%
2 (2)	7	26.92%	
3 (3)	8	30.77%	30.77%
4 (4)	9	34.62%	
5 (5)	1	3.85%	38.46%
No answer	0	0.00%	
Arithmetic mean	3.08		
Standard deviation	0.98		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-04

ID 2013-04. Magnetic pendulum.

Consider a pendulum with a magnet attached to its end. Place it over base containing magnets, and move it out of its equilibrium position. When is it possible to determine the final position of such pendulum?

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	26.92%
2 (2)	4	15.38%	
3 (3)	9	34.62%	34.62%
4 (4)	8	30.77%	
5 (5)	2	7.69%	38.46%
No answer	0	0.00%	
Arithmetic mean	3.08		
Standard deviation	1.13		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-05

ID 2013-05. Oscillating disk.

A massive horizontal disk is attached to a suspended helical spring.
Investigate the motion of the disk after it is subjected to vertical
oscillations.

Answer	Count	Percentage	Sum
1 (1)	5	19.23%	38.46%
2 (2)	5	19.23%	
3 (3)	8	30.77%	30.77%
4 (4)	6	23.08%	
5 (5)	2	7.69%	30.77%
No answer	0	0.00%	
Arithmetic mean	2.81		
Standard deviation	1.23		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-06

ID 2013-06. Leaky vessel.

If there is a hole near the base of the vessel, the liquid will flow out of it. How the flow rate depends on relevant parameters? Is it possible to construct a vessel such that the flow rate is the constant and independent on level of liquid inside the vessel?

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	34.62%
2 (2)	7	26.92%	
3 (3)	9	34.62%	34.62%
4 (4)	8	30.77%	
5 (5)	0	0.00%	30.77%
No answer	0	0.00%	
Arithmetic mean	2.88		
Standard deviation	0.95		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-08

ID 2013-08. Window Frost.

Window frost is formed if a glass pane is exposed to very cold air on one side and moderately moist air on the other side. If a pane is not a good isolator, water vapor condenses on the glass forming patterns. Investigate shape of those patterns.

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	53.85%
2 (2)	12	46.15%	
3 (3)	9	34.62%	34.62%
4 (4)	2	7.69%	
5 (5)	1	3.85%	11.54%
No answer	0	0.00%	
Arithmetic mean	2.54		
Standard deviation	0.9		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-09

ID 2013-09. Clapping hands.

After a great performance it is nice to gratitude the performer by clapping.
Investigate the sound of clapping. Is it possible to synthetically recover
the applause of the crowd from a recording of single person clapping?

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	46.15%
2 (2)	9	34.62%	
3 (3)	6	23.08%	23.08%
4 (4)	7	26.92%	
5 (5)	1	3.85%	30.77%
No answer	0	0.00%	
Arithmetic mean	2.77		
Standard deviation	1.11		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-10

ID 2013-10. Pendulum waves.

A determined number of pendulums are put side by side. The sizes of the pendulum's strings increase in the row. With a ruler (or rectangular piece of any material), all the pendulums are inclined together and released at the same time. Investigate the patterns that may be seen during the movement of the system and the relevant parameters for the phenomenon.

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	26.92%
2 (2)	5	19.23%	
3 (3)	10	38.46%	38.46%
4 (4)	9	34.62%	
5 (5)	0	0.00%	34.62%
No answer	0	0.00%	
Arithmetic mean	3		
Standard deviation	0.94		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-11

ID 2013-11. Swing machine.

The purpose is to construct a machine that could swing. It will be fixed in a hermetic box X. The whole construction is solid and can only rotate in the plane about the point A. Machine has to make it do one turn around the axis of rotation. The less time it requires the better. No installation outside the box (maybe except radio controller) is allowed.

Answer	Count	Percentage	Sum
1 (1)	6	23.08%	65.38%
2 (2)	11	42.31%	
3 (3)	2	7.69%	7.69%
4 (4)	6	23.08%	
5 (5)	1	3.85%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.42		
Standard deviation	1.21		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-14

ID 2013-14. Tiny rainbow.

Place two objects in the way that you can see a narrow band of a bright light bounded by them. If these objects are placed at enough diverse distance from you and the band of light is narrow enough, it decomposes into a kind of a rainbow. Study and explain the phenomenon.

Answer	Count	Percentage	Sum
1 (1)	6	23.08%	57.69%
2 (2)	9	34.62%	
3 (3)	8	30.77%	30.77%
4 (4)	3	11.54%	
5 (5)	0	0.00%	11.54%
No answer	0	0.00%	
Arithmetic mean	2.31		
Standard deviation	0.97		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-16

ID 2013-16. Shaking vessel.

Place and fix a vessel partially filled with water on a stiff vertical spring, which is fixed on the floor. Describe the motion of the vessel and its dependence on the amount of water in the vessel.

Answer	Count	Percentage	Sum
1 (1)	0	0.00%	19.23%
2 (2)	5	19.23%	
3 (3)	12	46.15%	46.15%
4 (4)	5	19.23%	
5 (5)	4	15.38%	34.62%
No answer	0	0.00%	
Arithmetic mean	3.31		
Standard deviation	0.97		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-17

ID 2013-17. Paper bridge.

It is more difficult to bend a paper sheet, if it is folded “accordion style” or rolled into a tube. Using a single A4 sheet and only a small amount of glue, construct a bridge spanning a gap of 290 mm. Introduce parameters to describe the strength of your bridge, and maximize some or all of them.

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	30.77%
2 (2)	5	19.23%	
3 (3)	5	19.23%	19.23%
4 (4)	7	26.92%	
5 (5)	6	23.08%	50.00%
No answer	0	0.00%	
Arithmetic mean	3.31		
Standard deviation	1.35		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-18

ID 2013-18. Cloud chamber.

Research, develop, and evaluate a cloud chamber. What types of particles can you observe with your chamber? What properties of the particles can be determined with the chamber?

Answer	Count	Percentage	Sum
1 (1)	6	23.08%	46.15%
2 (2)	6	23.08%	
3 (3)	8	30.77%	30.77%
4 (4)	3	11.54%	
5 (5)	3	11.54%	23.08%
No answer	0	0.00%	
Arithmetic mean	2.65		
Standard deviation	1.29		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-19

ID 2013-19. Carbon Microphone.

For many years, a design of microphone has involved the use of carbon granules. Varying pressure on the granules produced by incident sound waves produces an electrical output signal. Investigate the components of such a device and determine its characteristics.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	34.62%
2 (2)	8	30.77%	
3 (3)	8	30.77%	30.77%
4 (4)	7	26.92%	
5 (5)	2	7.69%	34.62%
No answer	0	0.00%	
Arithmetic mean	3.04		
Standard deviation	1.04		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-20

ID 2013-20. Peltier Generator.

Peltier devices can be used to actively cool the CPU in a computer. The same devices can also be used to generate an electrical output as a result of a temperature difference. Construct and evaluate an electrical generator based on a single Peltier device. Could a scaled up version provide enough electricity to run your home?

Answer	Count	Percentage	Sum
1 (1)	4	15.38%	38.46%
2 (2)	6	23.08%	
3 (3)	6	23.08%	23.08%
4 (4)	8	30.77%	
5 (5)	2	7.69%	38.46%
No answer	0	0.00%	
Arithmetic mean	2.92		
Standard deviation	1.23		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-21

ID 2013-21. YoYo Physics.

The YoYo has been entertaining adults and children for well over two thousand years. The motion of the Yoyo is controlled by gravity, and by applying and manipulating tensile forces in its string. Investigate the motion of a YoYo under various conditions.

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	26.92%
2 (2)	5	19.23%	
3 (3)	9	34.62%	34.62%
4 (4)	9	34.62%	
5 (5)	1	3.85%	38.46%
No answer	0	0.00%	
Arithmetic mean	3.08		
Standard deviation	1.02		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-22

ID 2013-22. Sunflower.

Explain how the spiral pattern of sunflower seeds, pineapple flakes and scales of pine cones arises. Perform an experiment to model its growth.

Answer	Count	Percentage	Sum
1 (1)	7	26.92%	57.69%
2 (2)	8	30.77%	
3 (3)	8	30.77%	30.77%
4 (4)	1	3.85%	
5 (5)	2	7.69%	11.54%
No answer	0	0.00%	
Arithmetic mean	2.35		
Standard deviation	1.16		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-23

ID 2013-23. Chain of coupled pendula.

Number (around 50) of equal pendula on stiff holds is equidistantly mounted on a horizontal axis in such a way that they can freely swing. Each two neighboring pendula are connected with a weak string. Determine the speed at which a small deflection propagates on such a chain. What is the speed of propagation of full 360° rotation of a pendulum (soliton)?

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	34.62%
2 (2)	8	30.77%	
3 (3)	5	19.23%	19.23%
4 (4)	8	30.77%	
5 (5)	4	15.38%	46.15%
No answer	0	0.00%	
Arithmetic mean	3.23		
Standard deviation	1.18		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-24

ID 2013-24. Edison effect.

The thermo-electron emission was demonstrated by Edison using an electrometer and a light bulb. How can the "thermo-emission current" be measured?

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	46.15%
2 (2)	9	34.62%	
3 (3)	7	26.92%	26.92%
4 (4)	6	23.08%	
5 (5)	1	3.85%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.73		
Standard deviation	1.08		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-25

ID 2013-25. Distortions.

When talking through a fire the sound is distorted. It is also distorted when it is recorded by microphone in a windy weather. Compare and analyze the differences between these two types of distortions.

Answer	Count	Percentage	Sum
1 (1)	4	15.38%	57.69%
2 (2)	11	42.31%	
3 (3)	6	23.08%	23.08%
4 (4)	2	7.69%	
5 (5)	3	11.54%	19.23%
No answer	0	0.00%	
Arithmetic mean	2.58		
Standard deviation	1.21		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-26

ID 2013-26. Platonic solids.

Compare experimentally the trajectory of the Platonic solids when rolling on a rough inclined surface. Investigate the outcomes for different tilts of the plane. What determines the mean-square perpendicular deviation of the trajectories of the bodies?

Answer	Count	Percentage	Sum
1 (1)	4	15.38%	42.31%
2 (2)	7	26.92%	
3 (3)	8	30.77%	30.77%
4 (4)	4	15.38%	
5 (5)	3	11.54%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.81		
Standard deviation	1.23		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-27

ID 2013-27. Jumper.

It is known that boiled buckwheat “jumps” when it is warmed up on a frying pan. Why? What maximum height can be reached by the jump of a buckwheat seed?

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	30.77%
2 (2)	5	19.23%	
3 (3)	13	50.00%	50.00%
4 (4)	4	15.38%	
5 (5)	1	3.85%	19.23%
No answer	0	0.00%	
Arithmetic mean	2.81		
Standard deviation	0.98		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-29

ID 2013-29. Exploding droplet.

Investigate the maximum size of a free falling droplet depending on its maximal charge.

Answer	Count	Percentage	Sum
1 (1)	6	23.08%	61.54%
2 (2)	10	38.46%	
3 (3)	6	23.08%	23.08%
4 (4)	2	7.69%	
5 (5)	2	7.69%	15.38%
No answer	0	0.00%	
Arithmetic mean	2.38		
Standard deviation	1.17		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-30

ID 2013-30. Fire hose.

Look at a fire hose when a water-jet is coming out of its nozzles. In this situation if the fireman drops down the hose you will see the oscillation of hose. Find the effective parameters on the domain and period of this oscillation.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	34.62%
2 (2)	8	30.77%	
3 (3)	6	23.08%	23.08%
4 (4)	8	30.77%	
5 (5)	3	11.54%	42.31%
No answer	0	0.00%	
Arithmetic mean	3.15		
Standard deviation	1.12		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-32

ID 2013-32. Helmholtz carousel.

Attach Christmas tree balls on a preferably frictionless mounting suspension (carousel) while the hole of each ball looks in a tangential direction to the rotation circle of the carousel. If you expose this setup to sound of a reasonable frequency with sufficient intensity, then the carousel starts to rotate. Explain this phenomenon and investigate the parameters leading to a maximum rotation frequency of the carousel.

Answer	Count	Percentage	Sum
1 (1)	0	0.00%	11.54%
2 (2)	3	11.54%	
3 (3)	6	23.08%	23.08%
4 (4)	11	42.31%	
5 (5)	6	23.08%	65.38%
No answer	0	0.00%	
Arithmetic mean	3.77		
Standard deviation	0.95		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-33

ID 2013-33. The strange sound of a cup with a handle.

When a cup is hit by a spoon, one gets a different sound spectrum depending on the spoon and the handle position. Investigate and explain the different spectra.

Answer	Count	Percentage	Sum
1 (1)	5	19.23%	50.00%
2 (2)	8	30.77%	
3 (3)	8	30.77%	30.77%
4 (4)	5	19.23%	
5 (5)	0	0.00%	19.23%
No answer	0	0.00%	
Arithmetic mean	2.5		
Standard deviation	1.03		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-34

ID 2013-34. Pulsating fountain.

Investigate the rising and falling process of a fluid jet, which is vertically upward directed.

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	30.77%
2 (2)	6	23.08%	
3 (3)	8	30.77%	30.77%
4 (4)	9	34.62%	
5 (5)	1	3.85%	38.46%
No answer	0	0.00%	
Arithmetic mean	3.04		
Standard deviation	1.04		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-35

ID 2013-35. Water rise.

Fill a saucer up with water and place a candle in the middle of the water.

Light the candle. Cover the candle with a clear beaker. Investigate and explain the phenomenon.

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	26.92%
2 (2)	4	15.38%	
3 (3)	9	34.62%	34.62%
4 (4)	9	34.62%	
5 (5)	1	3.85%	38.46%
No answer	0	0.00%	
Arithmetic mean	3.04		
Standard deviation	1.08		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-36

ID 2013-36. Climbing droplets.

Liquid droplets can perform a self-propelled uphill motion when they are placed on a hot ratchetlike surface. Investigate and explain the phenomenon.

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	34.62%
2 (2)	7	26.92%	
3 (3)	6	23.08%	23.08%
4 (4)	10	38.46%	
5 (5)	1	3.85%	42.31%
No answer	0	0.00%	
Arithmetic mean	3.04		
Standard deviation	1.08		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-37

ID 2013-37. Effervescent tablet.

An effervescent tablet dropped in water stays at the bottom of the glass at the beginning of the solution process. After some time the tablet rises to the top although the density of the tablet doesn't change. Examine the influence of relevant parameters and investigate the motion of the tablet.

Answer	Count	Percentage	Sum
1 (1)	5	19.23%	42.31%
2 (2)	6	23.08%	
3 (3)	8	30.77%	30.77%
4 (4)	7	26.92%	
5 (5)	0	0.00%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.65		
Standard deviation	1.09		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-38

ID 2013-38. Tumbling stick.

A cylindrical wooden stick lies on a horizontal surface. When you flip one end of the stick with your finger it starts to rotate about (or around) its mass centre. Under certain conditions the stick will rise up to a certain angle relative to the surface. Investigate the motion of the stick.

Answer	Count	Percentage	Sum
1 (1)	0	0.00%	46.15%
2 (2)	12	46.15%	
3 (3)	9	34.62%	34.62%
4 (4)	4	15.38%	
5 (5)	1	3.85%	19.23%
No answer	0	0.00%	
Arithmetic mean	2.77		
Standard deviation	0.86		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-39

ID 2013-39. Water jet.

The shape of a water jet out of a watering can deviates from cylindrical form. Under certain conditions one can observe nodes in the jet where the eccentricity of the cross changes. Investigate the shape of the jet.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	57.69%
2 (2)	14	53.85%	
3 (3)	8	30.77%	30.77%
4 (4)	3	11.54%	
5 (5)	0	0.00%	11.54%
No answer	0	0.00%	
Arithmetic mean	2.5		
Standard deviation	0.76		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-40-82

ID 2013-40-82. Flying chimney.

Light paper (e.g. from a tea bag) is formed into a cylinder with open front faces. The cylinder takes off, when one end is lit. Optimize the vertical velocity of the flying chimney.

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	30.77%
2 (2)	5	19.23%	
3 (3)	8	30.77%	30.77%
4 (4)	7	26.92%	
5 (5)	3	11.54%	38.46%
No answer	0	0.00%	
Arithmetic mean	3.08		
Standard deviation	1.2		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-41

ID 2013-41. Green flash.

When sun is at the horizon it turns red. Under specific conditions one may observe that very near the horizon sun turns green. Investigate and explain this phenomenon.

Answer	Count	Percentage	Sum
1 (1)	7	26.92%	50.00%
2 (2)	6	23.08%	
3 (3)	4	15.38%	15.38%
4 (4)	6	23.08%	
5 (5)	3	11.54%	34.62%
No answer	0	0.00%	
Arithmetic mean	2.69		
Standard deviation	1.41		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-43

ID 2013-43. Pingpong ball.

When you let a ping-pong ball go, it bounces of the ground. Character of the collision changes when ball is filled with water. Investigate how character of the collision depends on amount of water inside the ball and other relevant parameters.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	19.23%
2 (2)	4	15.38%	
3 (3)	7	26.92%	26.92%
4 (4)	10	38.46%	
5 (5)	4	15.38%	53.85%
No answer	0	0.00%	
Arithmetic mean	3.46		
Standard deviation	1.07		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-44

ID 2013-44. Riding a bike.

It is relatively easy to stay stable on the bike when one rides on it, but it is much harder when bike is not moving. Why is that? Investigate and explain the phenomenon.

Answer	Count	Percentage	Sum
1 (1)	5	19.23%	57.69%
2 (2)	10	38.46%	
3 (3)	8	30.77%	30.77%
4 (4)	1	3.85%	
5 (5)	2	7.69%	11.54%
No answer	0	0.00%	
Arithmetic mean	2.42		
Standard deviation	1.1		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-45

ID 2013-45. Running in the rain.

What is the optimal speed to run or walk during the rain in order to be as dry as possible?

Answer	Count	Percentage	Sum
1 (1)	6	23.08%	46.15%
2 (2)	6	23.08%	
3 (3)	8	30.77%	30.77%
4 (4)	3	11.54%	
5 (5)	3	11.54%	23.08%
No answer	0	0.00%	
Arithmetic mean	2.65		
Standard deviation	1.29		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-46

ID 2013-46. Double bubble.

It is a common phenomenon that liquid encloses a gas forming a bubble. Can an opposite situation occur? Can a film of gas enclose a liquid? Explore the phenomenon.

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	38.46%
2 (2)	8	30.77%	
3 (3)	8	30.77%	30.77%
4 (4)	6	23.08%	
5 (5)	2	7.69%	30.77%
No answer	0	0.00%	
Arithmetic mean	2.92		
Standard deviation	1.09		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-47

ID 2013-47. Water rocket.

Fill bottle of water partially with water and compressed air and place it vertically. When bottle is opened water will be pushed out and bottle will fly up. Achieve the highest altitude using a 1 litter bottle.

Answer	Count	Percentage	Sum
1 (1)	4	15.38%	26.92%
2 (2)	3	11.54%	
3 (3)	8	30.77%	30.77%
4 (4)	9	34.62%	
5 (5)	2	7.69%	42.31%
No answer	0	0.00%	
Arithmetic mean	3.08		
Standard deviation	1.2		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-48

ID 2013-48. Swing.

After some time kids learn to swing on the swing by them self. Explain and investigate the mechanism of swinging.

Answer	Count	Percentage	Sum
1 (1)	5	19.23%	42.31%
2 (2)	6	23.08%	
3 (3)	8	30.77%	30.77%
4 (4)	7	26.92%	
5 (5)	0	0.00%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.65		
Standard deviation	1.09		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-49

ID 2013-49. Railgun.

A conducting bullet is placed on two conducting rails with potential difference between them. Rails are placed in external magnetic field. Current flows through the system and bullet is accelerated. Investigate the relevant parameters and maximize the efficiency of such a device.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	34.62%
2 (2)	8	30.77%	
3 (3)	8	30.77%	30.77%
4 (4)	5	19.23%	
5 (5)	4	15.38%	34.62%
No answer	0	0.00%	
Arithmetic mean	3.12		
Standard deviation	1.14		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-50

ID 2013-50. Falling ring.

Hold a wooden rod vertically with plastic ring at the top and then spin the ring - it will gradually move down the rod. Its rate of descent decreases and spin increases. Explain and investigate influence of different parameters on this phenomenon.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	23.08%
2 (2)	5	19.23%	
3 (3)	6	23.08%	23.08%
4 (4)	9	34.62%	
5 (5)	5	19.23%	53.85%
No answer	0	0.00%	
Arithmetic mean	3.46		
Standard deviation	1.14		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-51

ID 2013-51. Ionic engine.

Metal cone is pointing on metal net. Both are attached to a high voltage power source. When circuit is on, wind appears from the tip of cone to the net. Explain and investigate this phenomenon in case of different voltages, materials and other relevant parameters and calculate efficiency.

Answer	Count	Percentage	Sum
1 (1)	8	30.77%	61.54%
2 (2)	8	30.77%	
3 (3)	6	23.08%	23.08%
4 (4)	2	7.69%	
5 (5)	2	7.69%	15.38%
No answer	0	0.00%	
Arithmetic mean	2.31		
Standard deviation	1.23		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-52

ID 2013-52. Egg in the bottle.

Lit a piece of paper and put it inside a bottle. Then place a hard-boiled egg on the vessel and watch the egg being sucked into the bottle. Study the origin of this effect and determine the relevant parameters.

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	53.85%
2 (2)	12	46.15%	
3 (3)	5	19.23%	19.23%
4 (4)	6	23.08%	
5 (5)	1	3.85%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.69		
Standard deviation	1.05		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-53

ID 2013-53. Falling chain.

What is the force of interaction between a falling chain and a surfaces it touches. How does it depend on relevant parameters?

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	38.46%
2 (2)	8	30.77%	
3 (3)	9	34.62%	34.62%
4 (4)	6	23.08%	
5 (5)	1	3.85%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.85		
Standard deviation	1.01		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-54

ID 2013-54. Newton's cradle.

Newton's cradle is very often used to demonstrate the conservation of energy and momentum in a mechanical system. However, many different motions of the balls can exhibit the same momentum and energy. What additional parameters determine the outcome of the collisions of the balls?

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	38.46%
2 (2)	8	30.77%	
3 (3)	11	42.31%	42.31%
4 (4)	4	15.38%	
5 (5)	1	3.85%	19.23%
No answer	0	0.00%	
Arithmetic mean	2.77		
Standard deviation	0.95		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-55

ID 2013-55. Helium speech.

After breathing helium, people speak in a recognizable and funny manner. Explain this phenomenon and study the parameters of the generated sound that change. Be sure to perform a safety research before conducting the experiment.

Answer	Count	Percentage	Sum
1 (1)	7	26.92%	65.38%
2 (2)	10	38.46%	
3 (3)	7	26.92%	26.92%
4 (4)	2	7.69%	
5 (5)	0	0.00%	7.69%
No answer	0	0.00%	
Arithmetic mean	2.15		
Standard deviation	0.92		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-56

ID 2013-56. Motion to Light.

Some plants move as the lightning condition changes, sometimes moving to face the light source to get more energy. Investigate this phenomenon and explain the movement mechanism.

Answer	Count	Percentage	Sum
1 (1)	8	30.77%	50.00%
2 (2)	5	19.23%	
3 (3)	6	23.08%	23.08%
4 (4)	5	19.23%	
5 (5)	2	7.69%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.54		
Standard deviation	1.33		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-57

ID 2013-57. Levitating ball.

A light ball (eg a ping pong ball) can be supported on an upward airstream.

The airstream can be tilted yet still support the ball. Investigate the effect and optimize the system to produce the maximum angle of tilt of the airstream to produce a stable ball position.

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	19.23%
2 (2)	2	7.69%	
3 (3)	7	26.92%	26.92%
4 (4)	11	42.31%	
5 (5)	3	11.54%	53.85%
No answer	0	0.00%	
Arithmetic mean	3.35		
Standard deviation	1.16		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-58

ID 2013-58. Singing saw.

When you cut an object with a hand saw - for example, if you saw through a piece of wood - the pitch of the sound that you hear changes as the cutting progresses. Investigate the situation and determine the relevant parameters which define the sound frequency?

Answer	Count	Percentage	Sum
1 (1)	4	15.38%	46.15%
2 (2)	8	30.77%	
3 (3)	11	42.31%	42.31%
4 (4)	1	3.85%	
5 (5)	2	7.69%	11.54%
No answer	0	0.00%	
Arithmetic mean	2.58		
Standard deviation	1.06		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-59

ID 2013-59. Vertical spring.

A vertical helical spring is secured at its base with a mass attached to the top. The mass is moved to one side and released. Investigate the motion of the system.

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	42.31%
2 (2)	9	34.62%	
3 (3)	13	50.00%	50.00%
4 (4)	1	3.85%	
5 (5)	1	3.85%	7.69%
No answer	0	0.00%	
Arithmetic mean	2.62		
Standard deviation	0.85		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-61

ID 2013-61. Hearing Sound.

Coat one half of a jar's inside with a layer of soot and drill a hole in its cover. When light from a light bulb connected to ac hits the jar's black wall, a distinct sound can be heard. Explain and investigate the phenomenon.

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	38.46%
2 (2)	7	26.92%	
3 (3)	3	11.54%	11.54%
4 (4)	10	38.46%	
5 (5)	3	11.54%	50.00%
No answer	0	0.00%	
Arithmetic mean	3.12		
Standard deviation	1.28		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-62

ID 2013-62. Hoops.

Make some hoops from an elastic material (e.g. strips of overhead transparencies). When you drop them vertically onto a hard surface, they rebound to a fraction of the initial height. Investigate how the rebound height depends on the relevant parameters.

Answer	Count	Percentage	Sum
1 (1)	0	0.00%	11.54%
2 (2)	3	11.54%	
3 (3)	15	57.69%	57.69%
4 (4)	6	23.08%	
5 (5)	2	7.69%	30.77%
No answer	0	0.00%	
Arithmetic mean	3.27		
Standard deviation	0.78		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-63

ID 2013-63. Dirty Microfiber Cloth.

Develop a procedure based on optical properties which allows to determine how dirty a microfiber cloth is.

Answer	Count	Percentage	Sum
1 (1)	5	19.23%	53.85%
2 (2)	9	34.62%	
3 (3)	9	34.62%	34.62%
4 (4)	3	11.54%	
5 (5)	0	0.00%	11.54%
No answer	0	0.00%	
Arithmetic mean	2.38		
Standard deviation	0.94		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-64

ID 2013-64. Rotating disc.

A conducting disc (e.g. copper or aluminium) can freely rotate about its axis. When a magnet is rotated about the same axis and close to the disc, the disc starts rotating. Explain and investigate the disc's motion.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	23.08%
2 (2)	5	19.23%	
3 (3)	8	30.77%	30.77%
4 (4)	11	42.31%	
5 (5)	1	3.85%	46.15%
No answer	0	0.00%	
Arithmetic mean	3.23		
Standard deviation	0.95		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-65

ID 2013-65. Elastic space.

The dynamics and apparent interactions of massive balls rolling on a stretched horizontal membrane are often used to illustrate gravitation. Investigate the system further. Is it possible to define and measure the apparent “gravitational constant” in such a “world”?

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	23.08%
2 (2)	3	11.54%	
3 (3)	5	19.23%	19.23%
4 (4)	8	30.77%	
5 (5)	7	26.92%	57.69%
No answer	0	0.00%	
Arithmetic mean	3.5		
Standard deviation	1.33		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-66

ID 2013-66. Honey coils.

A thin downward flow of viscous liquid, such as honey, often turns itself into circular coils. Study and explain this phenomenon.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	30.77%
2 (2)	7	26.92%	
3 (3)	4	15.38%	15.38%
4 (4)	9	34.62%	
5 (5)	5	19.23%	53.85%
No answer	0	0.00%	
Arithmetic mean	3.38		
Standard deviation	1.2		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-67

ID 2013-67. Twinkling stars.

Watching the sky by night one sees twinkling stars and the planets which shine more steady. Test your hypothesis experimentally!

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	57.69%
2 (2)	12	46.15%	
3 (3)	6	23.08%	23.08%
4 (4)	4	15.38%	
5 (5)	1	3.85%	19.23%
No answer	0	0.00%	
Arithmetic mean	2.54		
Standard deviation	1.03		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-68

ID 2013-68. Coloured Plastic.

Looking at a container or similar things made of plastic in bright sunlight, colours may be seen (see colours.jpg). Study and explain the phenomenon. Ascertain if one also sees the colours using an incandescent lamp as a light source.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	34.62%
2 (2)	8	30.77%	
3 (3)	10	38.46%	38.46%
4 (4)	5	19.23%	
5 (5)	2	7.69%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.96		
Standard deviation	1		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-69

ID 2013-69. Chirping ribbons.

Investigate and compare the sounds produced by tightening rubber bands in contrast to those of e.g. tightened threads. Determine the relevant parameters which are responsible for the differences in the sounds produced.

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	38.46%
2 (2)	8	30.77%	
3 (3)	11	42.31%	42.31%
4 (4)	4	15.38%	
5 (5)	1	3.85%	19.23%
No answer	0	0.00%	
Arithmetic mean	2.77		
Standard deviation	0.95		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-70

ID 2013-70. Spy glass.

If you look in a one-way mirror (e.g. in cars or buildings), you just see your reflection. But by taking photos, under certain conditions, you can see the background through the mirror in the picture.

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	34.62%
2 (2)	6	23.08%	
3 (3)	9	34.62%	34.62%
4 (4)	4	15.38%	
5 (5)	4	15.38%	30.77%
No answer	0	0.00%	
Arithmetic mean	3		
Standard deviation	1.23		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-71

ID 2013-71. The cello and the wolf.

Players of stringed instruments, especially those of cello and viola, often have to deal with a most annoying phenomenon: The so called wolf tone. It is a fast wobbling very unmusical sound that arises at a sharply defined frequency, characteristic for each single instrument. Investigate the phenomenon and combat the wolf!

Answer	Count	Percentage	Sum
1 (1)	4	15.38%	42.31%
2 (2)	7	26.92%	
3 (3)	6	23.08%	23.08%
4 (4)	8	30.77%	
5 (5)	1	3.85%	34.62%
No answer	0	0.00%	
Arithmetic mean	2.81		
Standard deviation	1.17		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-72

ID 2013-72. Straw Pop.

Take a drinking straw and hold each end between fingers to trap air inside. Wind the ends of the straw until the trapped air is pushed into the middle of the straw. A loud popping sound may be heard when the straw is flicked with a finger. Investigate the sound produced under various conditions.

Answer	Count	Percentage	Sum
1 (1)	4	15.38%	42.31%
2 (2)	7	26.92%	
3 (3)	12	46.15%	46.15%
4 (4)	2	7.69%	
5 (5)	1	3.85%	11.54%
No answer	0	0.00%	
Arithmetic mean	2.58		
Standard deviation	0.99		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-73

ID 2013-73. Ball scattering.

When a series of balls are rolled along parallel tracks towards an object they will be scattered in a pattern that will depend upon the shape of the object. Investigate how the scattered pattern allows the shape of the scattering object to be determined.

Answer	Count	Percentage	Sum
1 (1)	5	19.23%	53.85%
2 (2)	9	34.62%	
3 (3)	9	34.62%	34.62%
4 (4)	2	7.69%	
5 (5)	1	3.85%	11.54%
No answer	0	0.00%	
Arithmetic mean	2.42		
Standard deviation	1.03		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-74

ID 2013-74. Electrolycra.

Electrolycra is an example of a conductive fabric, where the fabric has metal plated onto the elastic fabric strands. The electrical resistance of the fabric varies as the electrolycra is placed under tension. Investigate the suitability of such a fabric as the basis of a pressure sensor.

Answer	Count	Percentage	Sum
1 (1)	5	19.23%	42.31%
2 (2)	6	23.08%	
3 (3)	9	34.62%	34.62%
4 (4)	5	19.23%	
5 (5)	1	3.85%	23.08%
No answer	0	0.00%	
Arithmetic mean	2.65		
Standard deviation	1.13		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-75

ID 2013-75. Song of the wind.

Sitting in a house during a storm, one can hear a song of the wind. How it is produced. Find the main parameters which determine such song.

Answer	Count	Percentage	Sum
1 (1)	9	34.62%	65.38%
2 (2)	8	30.77%	
3 (3)	6	23.08%	23.08%
4 (4)	3	11.54%	
5 (5)	0	0.00%	11.54%
No answer	0	0.00%	
Arithmetic mean	2.12		
Standard deviation	1.03		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-76

ID 2013-76. Lasso.

Lasso is used by various nations to catch animals. Explain mechanics of lasso moving and demonstrate it.

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	42.31%
2 (2)	8	30.77%	
3 (3)	8	30.77%	30.77%
4 (4)	7	26.92%	
5 (5)	0	0.00%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.73		
Standard deviation	1		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-77

ID 2013-77. Water lifting.

How water reach the top of high trees even during blossoming of leaves in spring.

Answer	Count	Percentage	Sum
1 (1)	11	42.31%	57.69%
2 (2)	4	15.38%	
3 (3)	4	15.38%	15.38%
4 (4)	5	19.23%	
5 (5)	2	7.69%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.35		
Standard deviation	1.41		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-78

ID 2013-78. Spoon loving water.

Take a tea spoon and touch water jet from a faucet. You will feel attraction. Explain the phenomenon and find essential parameters.

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	42.31%
2 (2)	9	34.62%	
3 (3)	8	30.77%	30.77%
4 (4)	5	19.23%	
5 (5)	2	7.69%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.85		
Standard deviation	1.08		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-79

ID 2013-79. Friction.

The commonly used model of the friction in high-school textbooks results in the friction force independent on the size of the contact area as well as on the velocity. Investigate the limitations of this model.

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	34.62%
2 (2)	6	23.08%	
3 (3)	10	38.46%	38.46%
4 (4)	4	15.38%	
5 (5)	3	11.54%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.92		
Standard deviation	1.16		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-80

ID 2013-80. Bouncing Spring.

Drop a compression spring vertically onto a horizontal surface so that it hits on one end. Investigate and explain the motion of the spring.

Answer	Count	Percentage	Sum
1 (1)	6	23.08%	61.54%
2 (2)	10	38.46%	
3 (3)	7	26.92%	26.92%
4 (4)	2	7.69%	
5 (5)	1	3.85%	11.54%
No answer	0	0.00%	
Arithmetic mean	2.31		
Standard deviation	1.05		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-81

ID 2013-81. Whistling sand.

Walking on dry sand may produce a distinct sound. Investigate the sound produced by a granular medium upon compression, and the role of relevant parameters.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	50.00%
2 (2)	12	46.15%	
3 (3)	7	26.92%	26.92%
4 (4)	4	15.38%	
5 (5)	2	7.69%	23.08%
No answer	0	0.00%	
Arithmetic mean	2.77		
Standard deviation	1.03		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-83

ID 2013-83. "Ball Bearing Motor".

A device called "Ball Bearing Motor" uses electrical energy to create rotational motion. What parameters do the motor efficiency and the angular velocity of the rotation depend on?

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	26.92%
2 (2)	6	23.08%	
3 (3)	6	23.08%	23.08%
4 (4)	8	30.77%	
5 (5)	5	19.23%	50.00%
No answer	0	0.00%	
Arithmetic mean	3.38		
Standard deviation	1.17		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-84

ID 2013-84. Collisions.

On a table, two slabs with the same thickness are put next to each other. One slab is made from hard materials, such as steel, and the other is made from soft materials, such as rubber. A pingpong ball falls onto the interface between the two slabs. Study the movement of the pingpong ball after the collision.

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	42.31%
2 (2)	8	30.77%	
3 (3)	11	42.31%	42.31%
4 (4)	3	11.54%	
5 (5)	1	3.85%	15.38%
No answer	0	0.00%	
Arithmetic mean	2.65		
Standard deviation	0.98		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-85

ID 2013-85. Diffraction.

Cut a narrow slit on a metal sheet. Immerge the metal sheet into liquid, such as water. When pulling out the metal sheet, you can see a liquid film in the slit. Illuminate the slit with liquid film and study the diffraction pattern of the slit.

Answer	Count	Percentage	Sum
1 (1)	1	3.85%	26.92%
2 (2)	6	23.08%	
3 (3)	13	50.00%	50.00%
4 (4)	4	15.38%	
5 (5)	2	7.69%	23.08%
No answer	0	0.00%	
Arithmetic mean	3		
Standard deviation	0.94		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-87

ID 2013-87. Caviar.

When a solution of alginate is poured drop by drop in a calcium containing solution, soft spherical beads can be seen to form. Study the parameters that determine the texture of the beads. Can you suggest an optimal recipe to get the most tasty beads?

Answer	Count	Percentage	Sum
1 (1)	9	34.62%	65.38%
2 (2)	8	30.77%	
3 (3)	2	7.69%	7.69%
4 (4)	3	11.54%	
5 (5)	4	15.38%	26.92%
No answer	0	0.00%	
Arithmetic mean	2.42		
Standard deviation	1.47		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-88

ID 2013-88. Cracking Ice.

When an ice cube is dipped in water, it may crack. Study the origin of this phenomenon and important parameters.

Answer	Count	Percentage	Sum
1 (1)	2	7.69%	38.46%
2 (2)	8	30.77%	
3 (3)	7	26.92%	26.92%
4 (4)	6	23.08%	
5 (5)	3	11.54%	34.62%
No answer	0	0.00%	
Arithmetic mean	3		
Standard deviation	1.17		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	



Field summary for ID 2013-89

ID 2013-89. Whirly.

Study how sound is produced in a “whirly” tube (sound hose).

Answer	Count	Percentage	Sum
1 (1)	3	11.54%	46.15%
2 (2)	9	34.62%	
3 (3)	8	30.77%	30.77%
4 (4)	3	11.54%	
5 (5)	3	11.54%	23.08%
No answer	0	0.00%	
Arithmetic mean	2.77		
Standard deviation	1.18		
Sum (Answers)	26	100.00%	100.00%
Number of cases	26	100.00%	