

Te Paepae o Aotea Science Badge

SPORT SCIENCE			
<i>Complete 20 stars</i>			
Rating	No	Exercises in Sport Science	Sign
**	1	Find out how force and energy get a cricket ball to turn a certain way in the air. Use diagrams to help explain the science involved. A demonstration earns an extra star	
**	2	What is the difference between anaerobic and aerobic exercise? List examples of each	
*	3	Place a tennis ball on top of a basketball or soccer ball. Hold one hand under the basketball and other on top of the tennis ball. Let go of both balls at the same time. Describe what happens. State why for an extra star	
*	4	Choose a sport. Describe the importance of carbohydrates, proteins, fats, fruit, vegetables and water in the athlete's diet. Present as a brochure or pamphlet	
*	5	What is a gear ratio and how do gears help make a bicycle so efficient?	
*	6	Why do road bikes have thin tyres while mountain bikes have fat tyres? Include a diagram of the tread and describe the significance of each type of tyre	
*	7	Describe, using a diagram, how momentum, gravity, friction and centripetal force are involved in skate boarding	
•	8	Choose 2 sports and present a PowerPoint or give a talk on the difference in body physique and how this aids their performance	
**	9	Describe a particular sport scientist's work and outline an experiment that he or she has undertaken in the field of sport. This could be as a pamphlet or other publicity method of your choice	
***	10	Select 2 different playing positions in a team sport. Measure and compare the time a person from each position walks, jogs and sprints during	

		5 minutes of the game. Display your results and comment on the differences in exertion	
*	11	Describe, with the help of a diagram, how physics plays a major role in alpine skiing as skiers travel down the mountain at speed	
**	12	Drop a ball from a minimum of four different heights and records for each height how high the ball bounces. Repeat this three times for each height to calculate the average bounce height. Record in a table and plot the average bounce height against the height that the ball was dropped from. Draw a conclusion from your graph e.g. As you increase the height from which the ball is dropped does the bounce increase by the same amount? For an extra star compare this ball with another ball of the same size which is used for a different sport (e.g table tennis ball and squash ball) and relate your findings to the sports that they are use for	
***	13	Conduct, and report on, an experiment to show how a spherical ball's circumference is related to the time it takes for the ball to fall?	

**	15	Full body swim suits are an advantage for competitive swimmers as they allow them to swim faster. Explain how these suits help swimmers to increase speed and list other sports that use the same principle to improve results	
***	16	Take your resting pulse rate and record. Now exercise for 5 minutes and record your pulse rate as soon as you stop. Continue taking your pulse every minute until it returns to normal. Record how long this takes. Repeat the above for 10, 15 and 20 minutes of continuous exercise. Display this data on a graph	
**	17	Time how long it takes to run the length of a netball court. Rest for 20 seconds and repeat. Attempt this 10 times and show results on a graph. Summarise what your graph shows and explain why this is the case?	

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**	18	Reaction time is how long it takes for someone to react to a stimulus and is important in most sports. Design an experiment that investigates if reaction time improves with repetition	
**	19	Using the experiment you designed for question 18 conduct the experiment and record your results in a graph. Summarise your findings	
**	20	Repeat your experiment used in 19 to compare the reaction time of boys and girls, or adults and children. Summarise your findings	
**	21	Draw a simple diagram of the body's double circulatory system. Label the heart, arteries, capillaries and veins. Explain the significance of the body's double circulatory system in a way that can be communicated to others	
**	22	Kick either a rugby ball over a goal post or shoot a netball or basketball into a hoop 10 times. Rest for 2 minutes and repeat. Do this for a total ten trials. Present your results in a chart or graph and comment on your findings. For example: does accuracy change over time and suggest the factors that might contribute to your results	