

STEMM Student Challenge

QUESTIONS



ROUND 1



Senior Secondary Section



Years 11-13



Q1

What do you get when you compress and cool solid carbon dioxide?



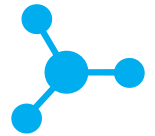
Q2

What company made the first electric dry shaver?



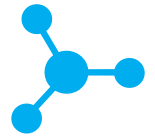
Q3

What is a number called if it is equal to the sum of its divisors other than itself?



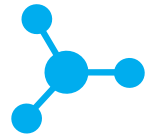
Q4

What is the study of the interaction between the air and solid bodies moving through it?



Q5

The movie “A Beautiful Mind” was based on the life of a Noble Prize winning mathematician who was tragically killed last week. Name him?



Q6

The Large Hadron Collider (LHC) that was used to confirm the existence of the Higgs boson particle is situated in a tunnel beneath the border of which 2 European countries?



Q7

The technologically advanced humanoid robot ASIMO is made by which car company?



Q8

What natural phenomenon helps replenish the ozone layer?



Q9

The outside layer of skin on the human body is called the?



Q10

What animal is the largest primate in the world?



ANSWERS



ROUND 1



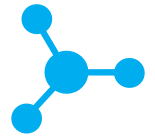
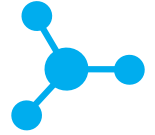
Senior Secondary Section



Years 11-13

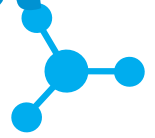


Q1: What do you get when you compress and cool solid carbon dioxide?



Answer: Dry Ice

Q2: What company made the first electric dry shaver?



Answer: Schick



Q3: What is a number called if it is equal to the sum of its divisors other than itself?



Answer: Perfect

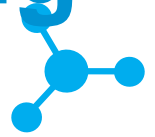
Q4: What is the study of the interaction between the air and solid bodies moving through it?



Answer: Aerodynamics



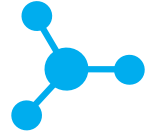
Q5: Name the Noble Prize winning mathematician?



Answer: John Nash



Q6: Under the border of which 2 countries is the LHC situated?



Answer: France and Switzerland



Q7: What car company makes the humanoid robot ASIMO?



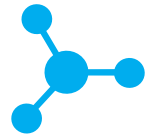
Answer: Honda



Q8: What natural phenomenon helps replenish the ozone layer?



Answer: Lightning



Q9: The outside layer of skin on the human body is called the?



Answer: Epidermis



Q10: What animal is the largest primate in the world?



Answer: The Gorilla



QUESTIONS



ROUND 2



Senior Secondary Section



Years 11-13



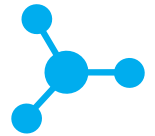
Q1

What are mosquitoes attracted to that results in women getting bitten more than men?



Q2

What colour is oxygen when it is converted into either a solid or a liquid?



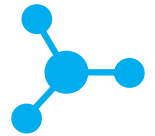
Q3

What does a sanguisugent creature crave?



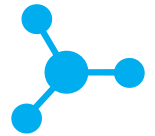
Q4

What is the only letter that does not appear on the periodic table?



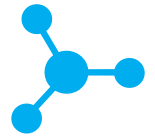
Q5

What was created first, the lighter or the match?



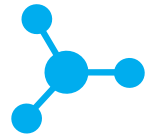
Q6

What respiratory disease was the leading cause of death in the late 19th century?



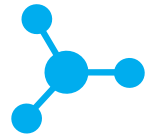
Q7

Name 2 factors that are homeostatically regulated in animals?



Q8

What is unique about the elements Mercury and Bromine at room temperature?



Q9

Which industry contributes most to global warming?

- a) meat, b) forestry, c) power,
- d) car



Q10

What unit of measurement is normally used to measure the diameter of wool?



ANSWERS



ROUND 2



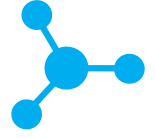
Senior Secondary Section



Years 11-13



Q1: What are mosquitoes attracted to that results in women getting bitten more than men do?



Answer: Estrogen



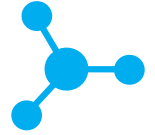
Q2: What colour is oxygen when it is converted into either a solid or a liquid?



Answer: Blue

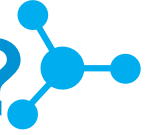
Q3: What does a sanguisugent creature crave?

Answer: Blood



Q4: What is the only letter that does not appear on the periodic table?

Answer: J



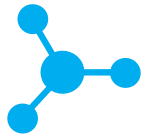
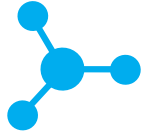
Q5: What was created first, the lighter or the match?



Answer: The lighter

Q6: What respiratory disease was the leading cause of death in the late 19th century?

**Answer: Tuberculosis
(consumption)**



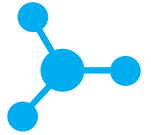
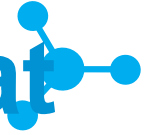
Q7: Name 2 factors that are homeostatically regulated in animals?

Answer: Temperature, blood glucose, pH, blood pressure, water potential, ions in the blood

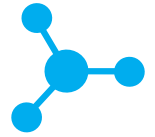


Q8: What is unique about the elements Mercury and Bromine at room temperature?

Answer: They are the only elements that are liquids



Q9: Which industry contributes most to global warming?



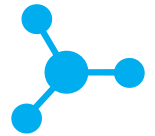
Answer: a) meat



Q10: What unit of measurement is normally used to measure the diameter of wool?



Answer: The micron



PRACTICAL TASK



ROUND 3



Senior Secondary Section

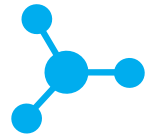


Years 11-13



ESTIMATION TASKS

1. Length: Cut a piece of crepe to a length of 43cm
2. Volume: Pour 125ml into the container
3. Mass: Place 85g of sugar into the container
4. Time: Time 1min 13 sec on the stopwatch
5. Temperature: Estimate water temperature to 32 degrees Celsius and place in the cup



ESTIMATION SCORING

1. **Length:** 40-46cm -2 pts, 35-51cm- 1pt
2. **Volume:** 120-130ml 2pts, 115-135ml- 1pt
3. **Mass:** 80-90g -2pts, 75-95g -1pt
4. **Time:** 1min 11-15sec -2pts, 1min 8-18sec-1pt
5. **Temperature:** 30-34 C -2pts, 27-37 C -1pt



QUESTIONS



ROUND 4



Senior Secondary Section



Years 11-13



Q1

What do crocodiles swallow to enable them to dive deeper?



Q2

What is the main nitrogenous waste product in mammals?



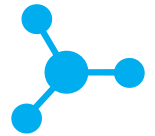
Q3

What is the name given to the inner lining of the uterus?



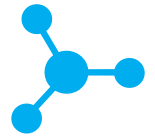
Q4

Name the three time periods of the dinosaurs?



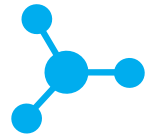
Q5

Ganymede is a moon of which planet?



Q6

Does an injury to your anterior cruciate ligament affect your arm or leg?



Q7

What substance accounts for 80% of the weight of the human brain?



Q8

What is the 25th term in the arithmetic series 1, 4, 7, 10?



Q9

How many incisors are there in a normal set of human teeth?



Q10

What term is used in geometry to describe two triangles that are equal in every respect?



ANSWERS



ROUND 4



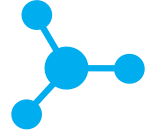
Senior Secondary Section



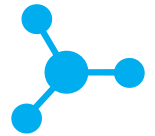
Years 11-13



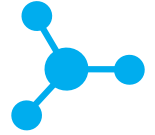
Q1: What do crocodiles swallow to enable them to dive deeper?



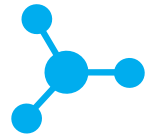
Answer: Stones



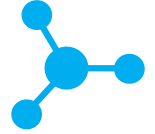
Q2: What is the main nitrogenous waste product in mammals?



Answer: Urea



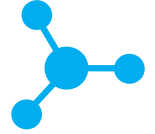
Q3: What is the name given to the inner lining of the uterus?



Answer: Endometrium



Q4: Name the three time periods of the dinosaurs?



Answer: Triassic, Jurassic and Cretaceous



Q5: Ganymede is a moon of which planet?



Answer: Jupiter



Q6: Does an injury to your anterior cruciate ligament affect your arm or leg?

Answer: Leg

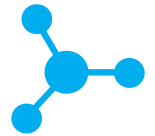


Q7: What substance accounts for 80% of the weight of the human brain?



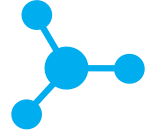
Answer: Water

Q8: What is the 25th term in the arithmetic series 1,4,7,10?

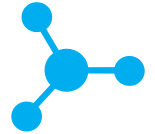


Answer: 73

Q9: How many incisors are there in a normal set of human teeth?



Answer: 8



Q10: What term is used in geometry to describe two triangles that are equal in every respect?

Answer: Congruent



QUESTIONS



ROUND 5



Senior Secondary Section

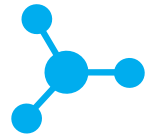


Years 11-13



Q1

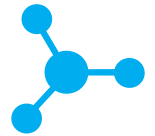
What element's chemical symbol is As?



Q2

Three fractions add together to give $\frac{1}{6}$. If all question marks represent the same number, what is the number?

$$\frac{1}{?} + \frac{1}{?} + \frac{1}{?} = \frac{1}{6}$$



Q3

What mammal lives the longest?



Q4

What type of fuel powers a Bic lighter?



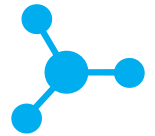
Q5

What features are the auricularis muscles designed to move?



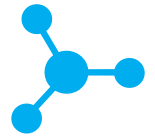
Q6

What is the final cost when GST is added to an item costing \$150?



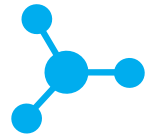
Q7

What marine creature was the original source of the dark dye known as sepia?



Q8

If 30 players enter a knockout contest with no byes after the first round, how many players will have a bye in the first round?



Q9

What technology breakthrough was created by Douglas Engelbert in 1963 consisting of a hard wooden shell and two clunky metal wheels?



Q10

What 3 dimensional shape's volume is found by multiplying the area of the base by the height and dividing by three?



ANSWERS



ROUND 5



Senior Secondary Section



Years 11-13



Q1: What element's chemical symbol is As?

Answer: Arsenic



Q2: Solve for ?: $1/? + 1/? + 1/? = 1/6$

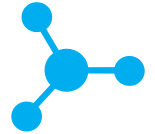


**Answer: The number
represented by ? is 18**

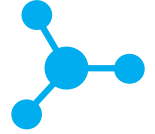


Q3: What mammal lives the longest?

Answer: Man



Q4: What type of fuel powers a Bic lighter?



Answer: Butane



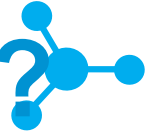
Q5: What features are the auricularis muscles designed to move?



Answer: The ears

Q6: What is the final cost when GST is added to an item costing \$150?

Answer: \$172.50



Q7: What marine creature was the original source of the dark dye known as sepia?

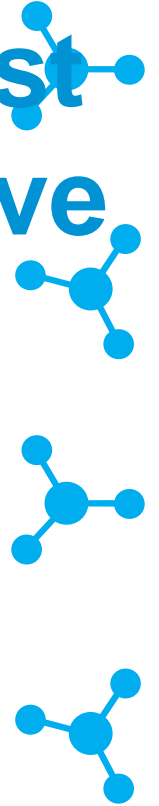


Answer: Cuttle Fish or Squid



Q8: If 30 players enter a knockout contest with no byes after the first round, how many players will have a bye in the first round?

Answer: 2



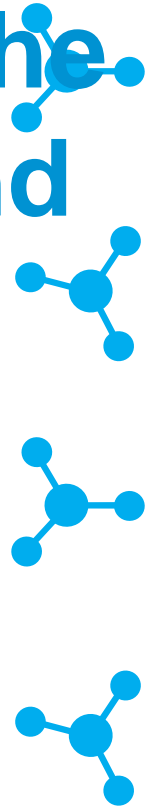
Q9: What technology breakthrough was created by Douglas Engelbart in 1967?

Answer: The computer mouse



Q10: What 3 dimensional shape's volume is found by multiplying the area of the base by the height and dividing by 3?

Answer: Pyramid or Cone



Well done to all teams participating in STEMM Student Challenge 2015



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