Final Exam Review

Figure 1

Figure 2

Changes in Asthma Attacks and Air Pollutants in Major U.S. City

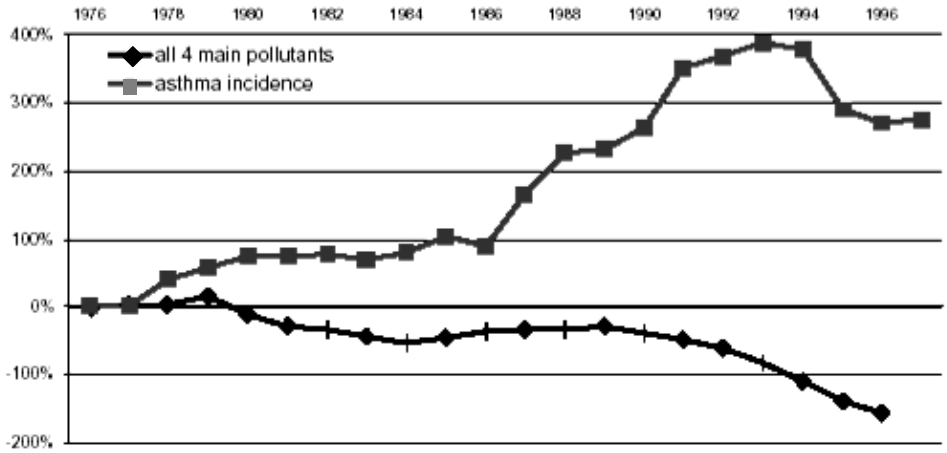


Figure 3

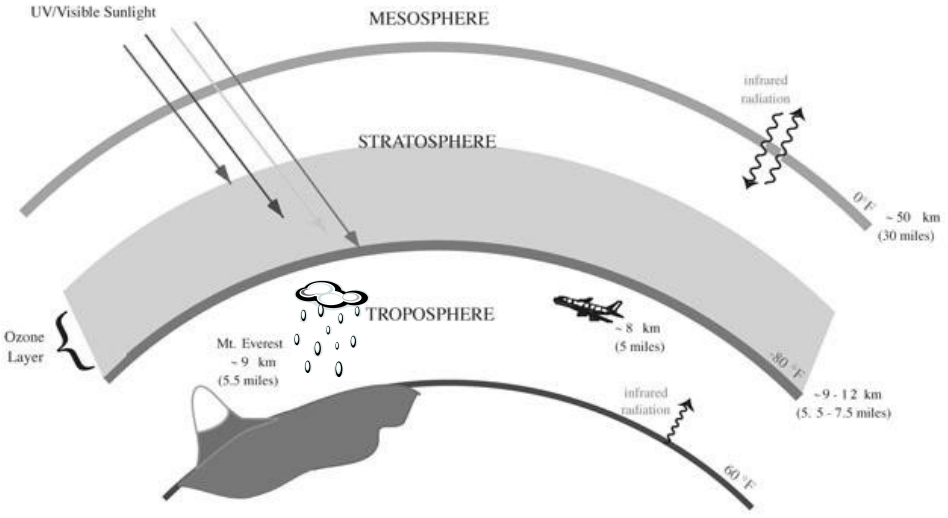


Figure 4

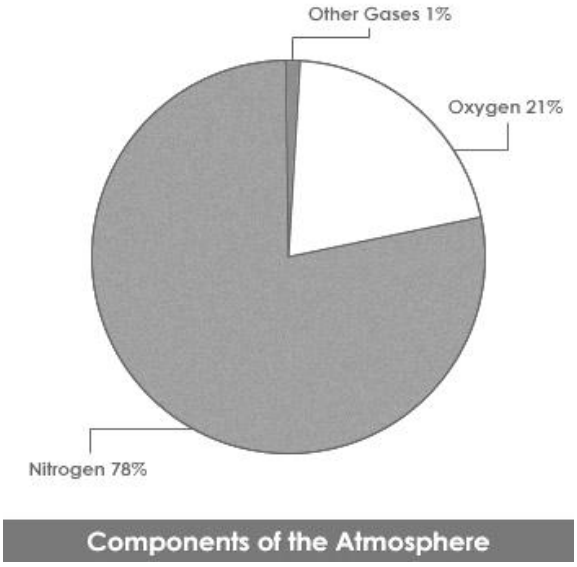


Figure 5

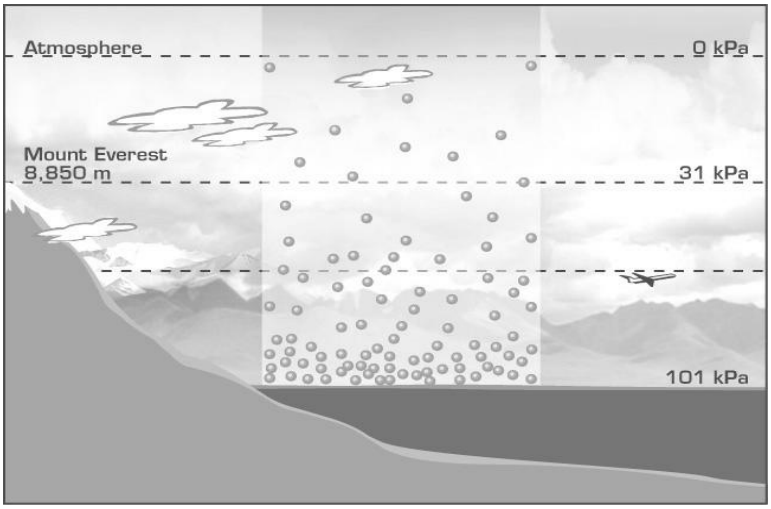
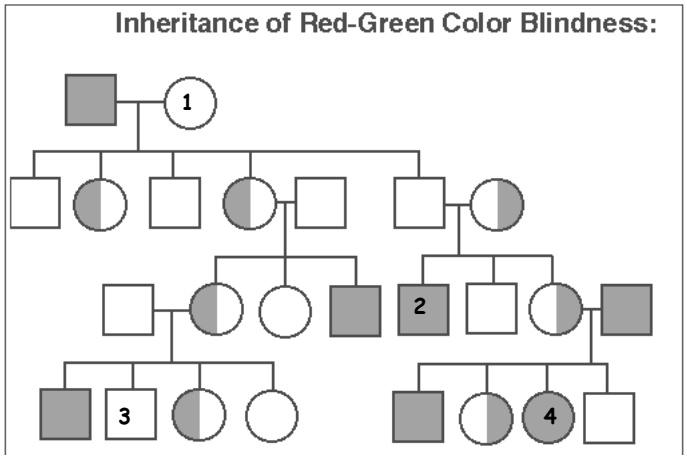


Figure 6



Science Grade 07
Mid-Term Benchmark Assessment (Version A)

1. Students working on a lab in chemistry class had the symbol on their paper. What should they be careful not to do?

A Putting the liquid near a flame
B Tasting the liquid
C Mixing the liquid with another liquid

2. *When measured with a thermometer, the liquid's temperature was 70°F.* This is an example of

A A prediction
B A hypothesis
C An observation

3. *If the price of concert tickets were lower, then the number of tickets sold would increase.* This is an example of

A A hypothesis
B An inference
C An observation

4 *There will be thunderstorms and a chance of lightning Wednesday afternoon.* This is an example of

A A hypothesis
B A prediction
C An explanation

5. In **Figure 1**, Sarah is heating a test tube over an open flame. What is the most serious safety concern for Sarah?

A Not taking out her contact lenses
B Not wearing gloves
C Not tying her hair back

6. *The pea plants in the garden died because they were not given enough water.* This is an example of

A A prediction
B An observation
C An inference

7. A college student working on research for asthma wanted to see if lowering the amount of pollution in the air affects the number of asthma attacks in people with breathing problems.

- The city was working on lowering the amount of air pollution from cars
- He studied 100 people with asthma that lived in the same city.
- For one year, he recorded the number of asthma attacks they had.

What was the independent variable? *(What was made to be different?)*

A Amount of air pollution
B Number of asthma attacks
C Type of pollution

8. What was the dependent variable in #7? *(What was measured or counted?)*

A Age of people
B Number of asthma attacks
C Type of pollution

9. What would be an important control variable in #7? *(What should be kept the same?)*

A Amount of air pollution
B Number of asthma attacks
C Age of people

10. The graph in **Figure 2** shows the data collected by the researcher in #7. Which of the following observations matches the data in the graph?

A The number of asthma attacks increased but the amount of pollution decreased

B The number of asthma attacks decreased but the amount of pollution increased

C Both the amount of asthma attacks and the amount of pollution increased

11. What was the question the researcher was trying to answer in #7?

A What age group has the most asthma attacks?

B What is the best medicine to treat asthma attacks?

C How does the amount of air pollution affect the number of asthma attacks?

12. What is the source of radiation entering Earth's atmosphere? **(Figure 3)**

A Outer space

B Ozone layer

C Sun

13. Most air pollution comes from

A Burning fossil fuels

B Forest fires

C Volcanic eruptions

14. Which of the following is the layer of the atmosphere where most weather occurs? **(Figure 3)**

A Mesosphere

B Troposphere

C Stratosphere

15. If all of the ozone in the stratosphere disappeared we would **(Figure 3)**

A Be more exposed to ultraviolet (UV) radiation

B Have fewer respiratory problems

C Be more protected from ultraviolet (UV) radiation

16. Which gas makes up the largest portion of our atmosphere? **(Figure 4)**

A Oxygen

B Nitrogen

C Carbon dioxide

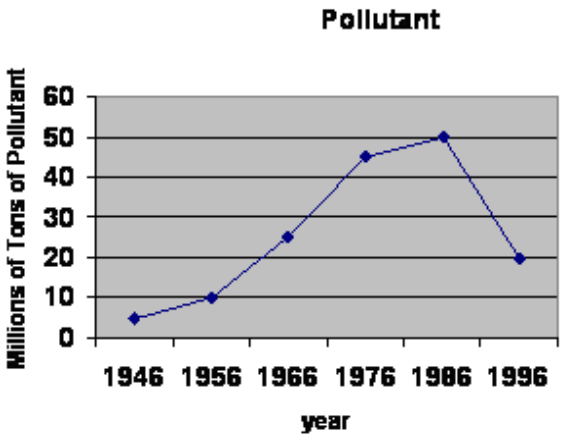
17. As you move up in the atmosphere (increase altitude), air pressure …. **(Figure 5)**

A Decreases

B Increases

C Doesn't change

18. Looking at the graph, about how many million tons of pollutant entered the atmosphere in the United States in 1966?



A 5

B 10

C 25

19. Hot air balloons rely on heated air to make them float. Which of the following statements support this fact?

A Cool air is less dense than warm air
B Cool air is lifted up by warm air
C Cool air is more dense than warm air

20. Winds are caused by differences in

A Air pressure
B Humidity
C Precipitation

21. Environmental stewardship is the responsibility to take care of natural resources. What can you do to promote the stewardship of air quality?

A Use sunblock to protect yourself from UV radiation
B Ride your bike instead of riding in a car
C Burn more fossil fuels

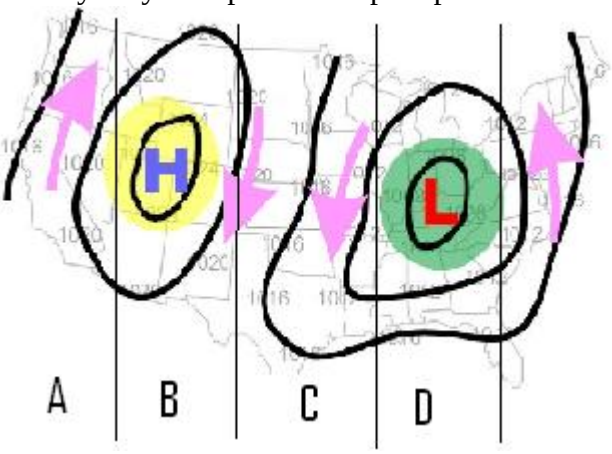
22. Weather radar systems, such as Doppler, can tell us which of the following?

A Storm intensity
B Pollution amounts
C Acid rain amounts

23. On a weather map, a red line with half circles indicates a(n)

A Hurricane
B Warm front
C Cold front

24. Low pressure is caused by moist air rising into the atmosphere creating stormy weather. Using the surface pressure map, in what part of the country do you expect to see precipitation?



A Section B
B Section C
C Section D

25. What type of storm is most likely going to develop from warm, moist air quickly rising in the atmosphere over land?

A Hurricane
B Thunderstorm
C Drizzle

26. Hurricanes typically form over

A Cold ocean water
B Warm ocean water
C Very dry land masses

27. A trait that is stronger than others, such as brown hair, is called

A Recessive
B Incomplete dominance
C Dominant

28. If a homozygous, or purebred, black guinea pig (BB) is crossed with a homozygous white guinea pig (bb) and they have 4 offspring, how many do you predict will have black fur?

A 1
B 2
C 4

29. In humans, what percentage of mom's genetic material is passed to the offspring?

A 25%
B 50%
C 100%

30. Tools used to predict likelihood that offspring will inherit a trait are called

A Pedigree chart
B Punnett square
C Probability table

31. In order for any offspring to display a recessive trait, what must be true of the parents?

A Both parents must carry the recessive gene
B Both parents must be homozygous dominant for the trait
C Both parents must also show the same recessive trait

32. What process best explains why children that have the same parents tend to look like each other but are not identical?

A Genes from the parents combine randomly
B Genes from the parents always combine in the same way
C All of the genes come from the mother

33. Which of the following statements is true?

A A gene is a section of DNA
B Genes and DNA are found in different parts of the cell
C All humans have the same DNA

34. What is the unit of heredity that determines a particular trait?

A A phenotype
B A nucleus
C A gene

35. Which of the following characteristics is an environmental trait rather than a genetic trait?

A Red and green colorblindness
B Music preference
C Naturally red, curly hair

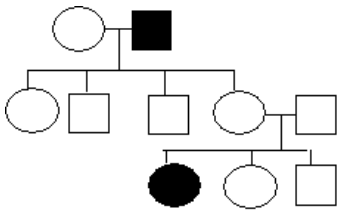
36. Rachel was born with wavy hair. Her mom has straight hair and her dad has curly hair. Wavy hair must be an example of

A Complete dominance
B A sex-linked trait
C Incomplete dominance

37. Raphael's blood type is AB. His mother's blood type is A. Which of the following could be Raphael's father?

A A man with type A blood
B A man with type B blood
C A man with type O blood

38. Look at the following pedigree. Individuals that show the phenotype for the trait are shaded in black. Carriers are **NOT** shown. It must be a



Individuals with the traits are shown with shading.

A A dominant trait
B A recessive trait
C A deadly trait

39. Cystic fibrosis is a recessive genetic disorder that causes the body to produce a thick mucus in the lungs. How can a child have cystic fibrosis if neither parent has cystic fibrosis?

A It is impossible for a child to have cystic fibrosis if neither parent has cystic fibrosis
B The child must have been exposed to environmental factors that caused cystic fibrosis
C Cystic fibrosis is a recessive disease so both parents must carry the gene for cystic fibrosis

40. _____ twins are twins that were supposed to be identical but their bodies never fully separated while they were developing and they remained fused together.

A Identical
B Fraternal
C Conjoined

41. What causes a child to be born with Down Syndrome?

A The mother's behavior during pregnancy
B Their genetic make-up
C Poor living conditions

42. Xavier and his identical twin, Monroe, were separated at birth. Xavier was allowed to eat only junk food while Monroe ate a healthy diet. Xavier is now 5 inches shorter than Monroe. This evidence supports which of the following statements?

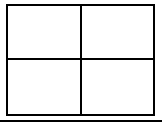
A Human characteristics are a product of genetics and lifestyle choices
B Human characteristics are only due to genetics
C Human characteristics are only due to lifestyle choices

43. After surgery, Joe needed a blood transfusion to replace lost blood. His body will also help in healing by creating new body and blood cells through a process called _____.

A Mitosis
B Meiosis
C Copying

44. Hemophilia is a sex-linked recessive disorder found on the X chromosome. A male with hemophilia marries a female that is not a carrier of the disorder. If they have a male child, what are the chances that he will have hemophilia? (Hint: Use a Punnett square to figure this out.)

A 0%
B 50%
C 100%



45. _____ are caused by mutations and are characterized by uncontrolled cell growth. They may be caused by environmental factors such as toxins and radiation.

A Sickle cell anemia
B Cancers
C Down syndrome

46. How many generations are shown on the pedigree? **(Figure 6)**

A 3
B 4
C 5

47. Is this an X or Y linked trait? **(Figure 6)**

A X
B Y
C Both X and Y

48. On a pedigree chart, what symbol is used to represent people with a disease? **(Figure 6)**

A 
B 
C 

49. How is person 2 related to person 1? **(Figure 6)**

A Child
B Grandchild
C Grandparent

50. What is true about color-blindness?

A Only males can be color-blind
B Color-blindness is a dominant trait
C Females are less likely to be color-blind

51. Which of the following lifestyle choices may increase the risk of cardiovascular disease?

A Healthy diet
B Regular exercise
C Smoking
D None, lifestyle choices do not affect your cardiovascular health

52. Which system controls all the processes of the body?

A Circulatory
B Nervous
C Respiratory
D Muscular

53. After eating a slice of pizza, which path does the food take through your digestive system?

A Stomach, esophagus, small intestine, large intestine
B Stomach, small intestine, large intestine, esophagus
C Esophagus, stomach, large intestine, small intestine
D Esophagus, stomach, small intestine, large intestine

54. Which of the following is an important function of the digestive system?

A Transport nerve impulses
B Absorb oxygen
C Absorb nutrients
D Transport nutrients

55. Which of the following statements correctly identifies the function of the liver?

A Chemically processes food
B Produces hormones
C Produces blood cells
D Filters harmful substances from the blood

56. Which of the following joint types allows your hip to move your leg in a circular motion?

A Pivot joint
B Ball and socket joint
C Gliding joint
D Hinge joint

57. Which of the following is a function of blood?

A Transports nutrients and other substances to body cells
B Carries saliva to the mouth
C Lubricates joints
D Transmits nerve signals to the cells

58. If a blockage occurred in a major artery, which of the following effects would you expect?

A Blood would not be able to flow back to the heart.
B Blood would not be able to flow between chambers in the heart.
C Blood would not be able to flow from the heart to the rest of the body.
D Blood would not be able to flow out of the lungs.

59. How does the skeletal system interact with the circulatory system?

A Spongy bone is produced by heart cells
B Red blood cells are produced in bone marrow
C Compact bone is made up of only red blood cells
D Calcium is produced by the circulatory system

60. Perspiration (sweat) is one of your body's responses to strenuous activity. Perspiration helps restore homeostasis by

A Removing excess oxygen
B Cleansing the skin surface
C Lowering body temperature
D Lubricating the skin

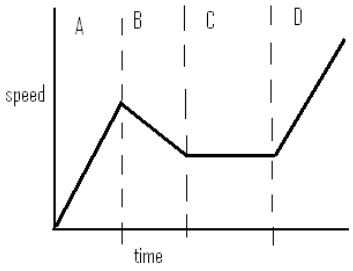
61. During which stage of development does puberty occur?

A Infancy
B Childhood
C Adulthood
D Adolescence

62. Which of the following systems does **NOT** remove wastes from the body?

A Digestive system
B Urinary system
C Respiratory system
D Nervous system

63. The graph illustrates the motion of a truck over a period of time. Which segment represents an acceleration of zero



A segment A
B segment B
C segment C
D segment D

64. When the temperature drops in a room, how do muscles contribute to homeostasis?

A They keep parts of the body together.
B They absorb excess water.
C They produce heat when they contract.
D They provide support.

65. High blood pressure is unhealthy because it

A Does not exert enough pressure on your arteries
B Causes your heart to work harder
C Does not allow enough nitrogen to get to the cells in your body
D Causes your veins to collapse

66. What might happen if the kidneys were **NOT** functioning properly?

A Your heart rate would increase.
B Your body could become swollen with water.
C Your nervous system would shut down.
D There would be no effect on your body.

67. Asthma is a medical condition that results in a problem with the respiratory system, what might happen in a person suffering from asthma?

A Less oxygen entering the bloodstream
B More oxygen entering the bloodstream
C Less protein in the urine
D More calcium in the bones

68. Which stage of human development is associated with the lowest physical growth rate?

A Adulthood
B Childhood
C Adolescence
D Infancy

69. Which measurements do you need to calculate speed?

A Force and distance
B Time and force
C Distance and time
D Mass and velocity

70. A hockey puck is hit and slides across the ice. Which of the following will eventually bring the puck to rest?

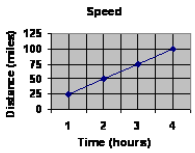
A Friction
B Gravity
C Inertia
D Momentum

71. A ball is at rest on the floor of a car traveling at a constant velocity. What will happen to the ball if the car suddenly stops?

A The ball will continue to travel straight
B The ball will swerve to the right
C The ball will swerve to the left
D The ball will stay in the same place

72. What is the average speed of the vehicle whose motion is shown in the graph after four hours of travel?

A 100 mph
B 25 mph
C 4 mph
D 50 mph



73. If you are leaning against a wall, the wall is exerting

A Half of the force in the same direction
B An equal force in the same direction
C An equal force in the opposite direction
D A force of 0 Newtons

74. To keep a box moving across a carpeted floor, a mover must apply constant force. Which of the following forces is most resistant to the motion of the box?

A Air resistance acting on the box
B Friction between the box and floor
C Gravity pulling on the box
D Weight of the box

75. As you were tracking a hurricane, you noticed that the velocity did not change for several hours. This means that the hurricane was

A Changing directions
B Accelerating quickly
C Not accelerating
D Getting larger

76. If a runner completes a 100 meter race in 20 seconds, what is her speed?

A 5 meters per second (m/s)
B 20 meters per second (m/s)
C 10 meters per second (m/s)
D 50 meters per second (m/s)

77. What two things do you need to know to describe the velocity of an object?

A Speed and direction
B Time and distance
C Speed and time
D Distance and direction

78. If you are on a train, which of the following could you look at to know your train is moving?

A A car traveling alongside the train at a slower speed
B Another train traveling on a nearby track in the opposite direction
C A railroad crossing sign
D Another passenger seated across the aisle of the same train

79. According to Newton's First Law, if a ball is moving through space and NO other forces are acting on it, the ball's inertia will

A Stop it moving in 3.5 seconds
B Move it faster over time
C Move it upward over time
D Continue moving it until another force acts on it

80. A car airbag slows the rate at which your body comes to a stop when the car stops suddenly in a collision. Which of the laws of motion best explains the need for an airbag?

A For every action, there is an equal and opposite reaction
B Objects in motion tend to stay in motion unless acted on by an outside force
C An object's acceleration is dependent on its mass and the net force applied
D Friction is a force that resists motion between two surfaces

81. A door knob is an example of a wheel and axle. Which of the following statements correctly identifies the mechanical advantage of this simple machine?

A The wheel has a larger radius than the radius of the axle
B The wheel has a smaller radius than the radius of the axle
C The radii of the wheel and axle are equal
D The mechanical advantage does not depend o the size of the radii

82. Machines help you work by

A Increasing the amount of work that must be done
B Conserving energy
C Decreasing friction
D Changing the size and direction of a force

83. Which body parts act as the <u>fulcrums</u> of levers?

A Muscles
B Joints
C Bones
D Tendons

84. A baseball has a greater mass than a tennis ball. According to Newton's Second Law of Motion, if the same force, other than gravity, is applied to both the baseball and the tennis ball, what result would you expect?

A The tennis ball will accelerate faster due to its lower mass
B The baseball will accelerate faster due to its greater mass
C They will accelerate at the same rate, mass is irrelevant
D Items that are thrown do not accelerate

85. Pulling down on a rope to raise a flag on a flagpole is an example of a machine doing which of the following?

A Multiplying amount of force
B Changing direction of a force
C Multiplying distance of a force
D Reducing friction

86. No real machine is 100 percent efficient. What is the best way to improve efficiency?

A Remove parts to reduce size
B Add parts to increase weight
C Use oil or grease to reduce friction
D Heat the machine to increase expansion

87. When you eat an apple, your jaw acts as what type of simple machine?

A Lever
B Screw
C Pulley
D Wheel and axle

88. ***Use the following lab recap for questions 88--90.***
In the Speed Inquiry Lab, you designed a setup to increase the speed of an object through three trials.
Which of the following hypotheses best fits this investigation?

A. If I push more on the marble, then the speed of the marble will increase along the table top.
B. If I increase the slope of a ramp, then the speed of the marble rolling down the ramp will increase.
C. If I increase the friction of the surface, then the marble's speed will increase.
D. If I decrease the slope of the ramp, then the speed will remain constant.

89. What could have been your independent and dependent variables?

A. Independent: weight of car; Dependent: height of ramp
B. Independent: type of object (marble/ car/ball); Dependent: speed of object
C. Independent: slope of ramp; Dependent: speed of object
D. Independent: speed of object; Dependent: mass of object

90. Which of the following equipment may have allowed you to collect better data? (Choose the BEST answer)

A. More meter sticks
B. Scientific calculator
C. Extra lab partner
D. Speed radar detector

THE END