

PHYSICS TRIVIA!!

From the Public Outreach Department
of the American Physical Society.

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Suggestion for teachers:

Divide class into teams of 4 or 5 students and instruct each group to choose a team name that is physics related, such as the “Gravity Wizards” or the “Forceful Five”. Have each team designate someone to record each answer on a card (index card or colored flash card). Read each question aloud and allow a certain amount of time for teams to discuss the answer amongst themselves. When time is up, go around the room and have the recorder from each team give their answer. Keep score on the board and reward one point for every correct answer. (Note: You may want to omit certain questions if they are too easy or too hard for the level of your class)

Questions:

- 1) Q: This Polish mathematician, philosopher, and astronomer was the first to postulate that the Earth revolves around the sun, rather than sits at the center of the universe.
- 2) Q: This physicist used the telescope to see the Earth’s moon, discover Jupiter’s moons, and discover sunspots.
- 3) Q: This Polish physicist won the 1903 Nobel prize in physics for the discovery of two highly radioactive elements – “radon” and “polonium”. The use of radioactivity has become apparent in many technologies, including radiation therapy for cancer.
- 4) Q: This 17th century physicist is known for the story of discovering gravity while sitting under an apple tree and watching an apple fall to the ground.
- 5) Q: In what form does energy travel between cell phones?
- 6) Q: What was the name of the 1990 romantic comedy set in Princeton, starring Walter Matthau as Albert Einstein and Meg Ryan as his niece?
- 7) Q: What force of nature is responsible for satellites remaining in orbit around the earth?
- 8) Q: Since traces of water have been found on this planet, it is thought to have at one time carried life form.
- 9) Q: What country was Einstein born in?

10) Q: True or False: In the absence of air resistance, two objects of very different masses would fall at exactly the same rate when dropped from the top of a building.

11) Q: What is the name of the world's largest particle physics laboratory in Switzerland?

12) Q: This celestial object has such an extremely large density, that gravity prevents even its own light from escaping.

13) Q: This NASA funded, optical imaging telescope was launched into orbit in 1990 and has aided us in understanding many aspects of the universe, including its expansion as well as characteristics of far off galaxies.

14) Q: Q: How long ago were X-rays discovered: A) during the last 50 yrs B) 50-100 yrs ago C) 100-150 yrs ago D) more than 150 yrs ago

15) Q: Einstein held this job in Switzerland from 1902-1909. He is known for spending much of his spare time in this position, writing his theoretical physics publications.

16) Q: The unit to describe power, the WATT, is really a measure of what rate?

17) Q: True/False: Gamma rays are a type of electromagnetic radiation that are the least energetic on the spectrum, i.e. they have the lowest frequency and longest wavelength.

18) Q: What equation is Einstein most famous for?

19) Q: Modern physics theories state that the proton and neutron are made up of these fundamental particles.

20) Q: What is the mass of an electron in kilograms?

21) Q: This instrument can be used to visualize each separate color that constitutes white light

22) Q: This physicist is famous for using his cathode ray tube experiment to discover the electron.

23) Q: A typical engine converts this type of energy into mechanical energy.

24) Q: This famous 20th century American physicist is known for his charismatic, eccentric personality as well as for his work in quantum electrodynamics.

25) Q: This astrophysicist was the first American female to travel to space.

26) Q: Faraday's law says that any change in magnetic field will induce this other type of field.

- 27) Q: Einstein theorized that light could be described not only as waves, but also as fundamental particles called what?
- 28) Q: What quantity was measured in the famous Michelson-Morley experiment performed in 1879?
- 29) Q: What quantity was measured in Millikan's famous oil drop experiment?
- 30) Q: How old was Einstein when he published his famous papers in 1905?
- 31) Q: What U.S. state is the world's second largest high energy physics center - Fermi National Accelerator Laboratory, located in?
- 32) (True/False) According to Einstein's special theory of relativity, a person traveling in a spaceship whose velocity is close to that of the speed of light, will come back older than their twin who remained at rest on Earth.
- 33) Q: What characteristic of an object relates the force exerted on it to the acceleration it experiences because of that force?
- 34) Q: How many brothers and sisters did Einstein have?
- 35) Q: (True/False) Einstein was asked to become the second President of the State of Israel.
- 36) Q: Einstein published three famous papers in 1905. Which of the following was not a topic of one of his papers: a) the theory of relativity b) the quantum nature of light and c) the kinetic theory of molecular gases d) the properties of magnetism
- 37) Q: What unit is most commonly used to measure resistance?
- 38) Q: The Chandra Observatory, which was ejected from the space shuttle Columbia in 1999 and boosted by rockets to its designated orbit, uses which of the following type of electromagnetic energy to try and see superheated cosmic phenomena events in space such as black holes, quasars, and comets? A) radio waves B) X-rays C) visible light rays
- 39) Q: Which of the following quantities are always conserved in a closed system: A) energy B) speed C) acceleration D) kinetic energy
- 40) Q: The centripetal force that allows an object to travel in a circle as it is attached to the end of a string swung around by a person, depends on all of the following quantities except one: A) length of string B) the mass of the person holding the string C) the mass of object D) velocity of object
- 41) Q: Which arrangement of resistors will absorb less power? A) 2 resistors in series B) 2 resistors in parallel

- 42) Q: (True/False) The weight of an object is the same as the mass of that object.
- 43) Q: (True/False) The mass of an object will remain the same on Earth and on the moon.
- 44) Q: What type of electromagnetic energy radiates from objects and enters our eyes, allowing us to see images and colors?
- 45) Q: Eyeglasses function by bending light rays coming from objects to our eyes in certain ways that bring the objects into clearer focus. What is the term that describes this bending of the light waves?
- 46) Q: There are two roller coasters right next to each other at an amusement park – the Grizzly Bear and the Big Bad Wolf. As you stand watching them, you see that each one has a car approaching the top of a steep hill. The height of the hill on the Grizzly Bear is much greater than that of the hill on the Big Bad Wolf. If the cars approaching the top are both moving at the exact same speed, which will be traveling faster when they reach the bottom of their respective hills – the car on the Big Bad Wolf or the car on the Grizzly Bear?
- 47) Q: The force of gravity that two objects such as the Earth and a baseball exert on each other depends on all of the following quantities except: A) the mass of the Earth B) the mass of the baseball C) the radius between the center of the Earth and the center of the baseball D) the potential energy of both objects combined
- 48) Q: A functional MRI uses which of the following to produce images of specialized areas of the brain: A) radio waves and strong magnetic fields B) x rays and weak magnetic fields C) gamma waves and electric fields
- 49) Q: Radar is a technique used to detect the position, movement, and nature of remote objects by means of radio waves. Radio signals are transmitted to a target, reflected off that target, and returned to the receiver where the information is analyzed to determine more about the target. What does the acronym RADAR stand for?
- 50) Q: Light from moving objects will appear to have different wavelengths depending on the relative motion of the source and the observer. An example of this is when a train is moving away from you and you hear a decrease in pitch. What is this effect called?