

FUTURE FACES OF PHYSICS

Jeopardy



Host Manual
Practice Round

The host is responsible for introducing the game, reading the categories at the start of each round, reading the clues, and judging the responses. The responses do not appear on the Jeopardy board, they are given only in this manual. If no correct response is given to a clue, the host is responsible for reading the correct response.

Introducing the Game

The Host should start the game by welcoming the players and audience and letting them know that this is *Future Faces of Physics Jeopardy*, and that *Future Faces of Physics* is the theme for SPS this year. Then he or she should briefly explain how the game works, being sure to highlight these rules:

1. Teams may not buzz in until the question has been read.
2. Teams can discuss responses prior to buzzing in, but all conversation must stop when someone buzzes in. The person that hits the buzzer must be the same person that gives the response.
3. Responses must be given in the form of a question.
4. The Host (or another person determined by the Host) is the final judge on whether an answer will be accepted.

Introducing the Categories

At the start of each new round, the Host reads the categories aloud and gives brief explanations when necessary (explanations are given in parenthesis next to the category heading in this manual, where appropriate).

Reading the questions

After a team selects a clue and the Game Operator opens the corresponding slide, the Host reads the clue. The Host should take his or her time reading—teams will not be able to buzz in until the Host has finished reading the clue and the Game Operator clears the buzzer system.

Judging the answers

Correct responses to the clues are given in this manual. Occasionally teams may give responses that are similar but not identical to the responses given in the manual, or they may interpret a clue differently than was intended. The Host has final say on whether a response is acceptable. If you feel more comfortable, you can delegate this role to another person not participating in the game.

Warning: Do not turn the page if you plan to play the game!

PRACTICE ROUND

Sci-Fi to Real Life

100. This fictional teleportation machine that moved people from one place to another in Star Trek now has a real-world equivalent -- using photons, not atoms yet.
-What is a transporter beam?

200. The P in PET scans, this anti-particle – which formed the basis of the “brains” in Isaac Asimov’s robots – is now used to study the sources of medical seizures in the body.

-What is positron? (Positron Emission Tomography)

300. The S in LASER, this word describes a process that contrasts with "spontaneous" emission of light.

-What is stimulated? (Light Amplification by Stimulated Emission of Radiation)

400. Philo T. Farnsworth is often credited with this invention, in which images are transmitted via electromagnetic radiation.

-What is the television?

500. True to the sound of her name, she taught everyone "how" to slow light down to bicycle speeds in 1998.

-Who is Lene Hau?

Famous Numbers (give the name of the constant)

100. 3.142

-What is Pi?

200. 2.997×10^8 m/s

-What is the speed of light?

300. Daily Double: 1.602×10^{-19} C

-What is the charge of the proton? (Also acceptable – What is the fundamental unit of charge?)

400. 6.626×10^{-34} J-s

-What is Planck’s constant?

500. 1.380×10^{-23} J/K

-What is Boltzmann’s constant?

Nobel Prizes

100. Nobel prizes are paid for by this invention.

-What is Dynamite?

200. Known for picking locks and playing the bongo drums, he won a Nobel Prize for his fundamental work in quantum electrodynamics.

-Who is Richard Feynman?

300. This Nobel winner was asked to be President of Israel, but declined.

-Who is Albert Einstein?

400. The 2008 Sigma Pi Sigma Congress will be held at an accelerator lab in Chicago named after this Nobel Prize winner.

-Who is Enrico Fermi?

500. Albert Fert of France and Peter Grünberg from Germany shared the 2007 Nobel Prize in Physics for this discovery.

-What is Giant Magnetoresistance?

Sub-Atomic

100. It is the lightest stable particle.

-What is an electron, e-?

200. This particle has long been thought to be mass-less, but recent results indicate that it may have a very small mass.

-What is a neutrino?

300. The two quarks that comprise almost all matter.

-What are the up and down quarks?

400. The class of particles that includes electrons, positrons, neutrinos, the muon, and the tau particle.

-What are leptons?

500. The particle which holds quarks together inside hadrons.

-What are gluons?

Sports Physics

100. When a football travels through air, introductory physics texts claim it follows this type of path.

-What is parabolic? (neglecting air resistance and non-constant g)

200. In this team sport, Newton's first law is most nearly realized.

-What is hockey?

300. In these two sports, balls have non-uniformities, known as dimples and seams, which surprisingly enhance the balls' range.

-What are golf and baseball?

400. In this Fred Flintstone sport, the player who increases the entropy the most wins.

-What is bowling?

500. The shape of a soccer ball resembles this form of carbon, from the Fullerene family.

-What is a "buckyball"?