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Particle theory for kids

Solids, Liquids and Gases Properties All materials are made of tiny particles. These are called atoms. Sometimes atoms come together to form molecules. Scientists talk about different materials talking about these particles. They talk about how atoms (or molecules) are organized. This helps scientists explain solids, liquids and gases. In solids, particles are arranged in a regular pattern. They are united by strong forces. This is why solids have a fixed shape. You cannot crush or change the volume of bodies. The particles are already as close to each other as they can get. This diagram shows the particles in a solid. Liquids With liquids, the particles are still very close. But the forces that hold them together are not as strong as they are in solids. Particles can move. That's why you can pour a liquid. You can't crush a liquid because the particles are still very close together. This diagram shows the particles in a liquid. Gases The particles of a gas are very separate. They move very fast. Gases are easy to crush because there is a lot of space between particles. This diagram shows the particles in a gas. What happens when a material is heated? This diagram shows what happens to particles in a solid material as it heats up. In order to continue enjoying our site, we ask you to confirm your identity as a human. Thank you very much for your cooperation. Particles are organized and moved differently in each state of matter. Solids contain particles that are tightly packed, with very little space between particles. If an object can contain its own shape and is difficult to compress, it is a solid. Liquids contain particles that are more slightly packed than solids, but are still tightly packed compared to gases. Particles in liquids are able to slide from each other, or flow, to take the shape of your container. The particles are even more separated into gases. The gases will fill any container, but if they are not in a container, they will escape into the air. There is a lot of space between the particles of a gas, allowing the gases to be compressed (pushed together) much more easily than solids and liquids. Solids, Liquids and Gases Properties All materials are made of tiny particles. These are called atoms. Sometimes atoms come together to form molecules. Scientists talk about different materials talking about these particles. They talk about how atoms (or molecules) are organized. This helps scientists explain solids, liquids and gases. In solids, particles are arranged in a regular pattern. They are united by strong forces. This is why solids have a fixed shape. You cannot crush or change the volume of bodies. The particles are already as close to each other as they can get. This diagram shows the particles in a solid. Liquids With liquids, the particles are still very close. But he keeping them together are not as strong as in solids. Particles can move. That's why you can pour a liquid. You can't crush a liquid because the particles are still very close together. This diagram shows the particles in a liquid. Gases The particles of a gas are very separate. They move very fast. Gases are easy to crush because there is a lot of space between particles. This diagram shows the particles in a gas. What happens when a material is heated? This diagram shows what happens to particles in a solid material as it heats up. In order to continue enjoying our site, we ask you to confirm your identity as a human. Thank you very much for your cooperation. Particles are organized and moved differently in each state of matter. Solids contain particles that are tightly packed, with very little space between particles. If an object can contain its own shape and is difficult to compress, it is a solid. Liquids contain particles that are more slightly packed than solids, but are still tightly packed compared to gases. Particles in liquids are able to slide from each other, or flow, to take the shape of your container. The particles are even more separated into gases. The gases will fill any container, but if they are not in a container, they will escape into the air. There is a lot of space between the particles of a gas, allowing the gases to be compressed (pushed together) much more easily than solids and liquids. In order to continue enjoying our site, we ask you to confirm your identity as a human. Thank you very much for your cooperation. Related Topics: More Science Worksheets Math Worksheets A series of free science lessons for 7th grade and 8th grade KS3 and Checkpoint Science in preparation for GCSE and IGCSE Science. Theory of Particles Nature of Matter and State Changes The theory of kinetic particles explains the properties of the different states of matter. Particles in solids, liquids and gases have different amounts of energy. They are organized differently and move in different ways. Solids They have a fixed shape and cannot flow because particles cannot move from one place to another. They cannot be compressed or crushed because the particles are together and have no room to move. Liquids flow and take the shape of their container because particles are free to move around each other. They cannot be compressed or crushed because the particles are together and have no room to move. Gases flow and completely fill your container because particles can move quickly in all directions. They can be compressed or crushed because the particles very separate and have room to move. Changes in the freezing states of matter - Fusion condensation - Vaporize Sublimate - Deposition show video factors affecting evaporation rate The evaporation rate is affected by several factors, including breeze, dryness of the surrounding air and surface. Show video Try the free mathway calculator and troubleshooter below to practice various math topics. Test the given examples, or write your own problem and check your answer with step-by-step explanations. We appreciate your comments, comments and questions about this site or page. Please submit your comments or inquiries through our feedback page. Particles are organized and moved differently in each state of matter. Solids contain particles that are tightly packed, with very little space between particles. If an object can contain its own shape and is difficult to compress, it is a solid. Liquids contain particles that are more slightly packed than solids, but are still tightly packed compared to gases. Particles in liquids are able to slide from each other, or flow, to take the shape of your container. The particles are even more separated into gases. The gases will fill any container, but if they are not in a container, they will escape into the air. There is a lot of space between the particles of a gas, allowing the gases to be compressed (pushed together) much more easily than solids and liquids. In order to continue enjoying our site, we ask you to confirm your identity as a human. Thank you very much for your cooperation. Particle theory is an incredibly widely believed theory of matter, which essentially holds that matter is made up of small particles that are constantly moving. Particle theory is the mastery of particle physics, which is also known as high-energy physics, because many of the most fundamental particles generally do not occur in nature, but can be generated by creating extremely high energy interactions between particles. The predecessor of modern particle theory dates back to ancient Greece, when philosophers in the 6th century a. C. argued that there were fundamental particles of matter. However, for thousands of years after this, particle theory disappeared in most of the world, and several other theories emerged instead. In the 19th century, however, he made a comeback, with a scientist named John Dalton proposing a fundamental and indivisible particle that made up all the matter. He named this particle the atom, of the Greek word meaning indivisible. By the end of the 19th century it had become apparent, however, that the atom was not, in fact, indivisible, and that there were even smaller particles forming the atom. During the twentieth century, and in the 21st century, these particles were divided, and new high-energy particles were discovered. The discovery of these particles to refine and expand the nature of particle physics, and much of the work done today has to do with generating new particles to observe. This is done by creating very high-energy interactions in particle accelerators, where particles are thrown at each other at incredibly high essentially tearing itself apart in its constituent bits and releasing energy particles that dissipate rapidly. The working model of particle theory at the moment is known as the Standard Model. The Standard Model, while not a true Unifying Theory, is very close. It addresses three of the four known interactions: electromagnetic forces, strong and weak. It does not address gravitational pull, making it incomplete, but it still allows a lot of integral understanding of particles and the universe as a whole. The model contains twenty-four fundamental particles, which make up matter, and the caliber bosons that mediate the forces. It also predicts a type of boson, the Higgs boson, which is the only boson not yet observed, which is expected to be detected by the Large Hadron Collider. At a basic level, particle theory helps categorize the three main states of matter we see at the day-to-day level. Particles are seen relative to each other, and how much energy they have, which affects the amount they move. In a state where particles are strongly attracted to each other, and stay firmly together in a state where they vibrate but remain relatively fixed, there is a solid. When there is some attraction between the particles, and they stay a little together, with a relatively free degree of movement, there is a liquid. And when there is little attraction between the particles, and they can move freely, there is a gas. Exists.

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