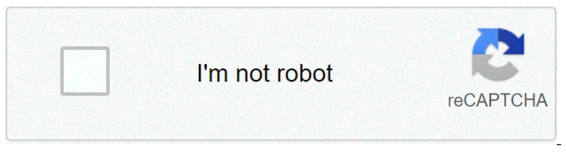

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Science projects for kids: the incredible universe takes you to worlds just waiting to be discovered. With simple instructions and everyday materials, you'll be learning more about constellations with the kids. You can start with star gazing and watching shooting stars -- and then make a planetarium or star theater to bring what you've learned back home. Learn more about the planets and star brightness, and make an astrolabe. And those are just some of the science projects you can try!Follow the links below to find science projects for kids: the incredible universe that you can do with kids:Make a PlanetariumUse planetarium to show constellations on a wall in your house.Star GazingStart by finding the North Star, and then see more.Umbrella Full of StarsTurn your umbrella into a star-studded private planetarium.Star TheaterMake constellation punch-outs and then a star theater.Scale Down the Solar SystemUse peas, fruit, and nuts in a true scale model of the solar system.Make an AstrolabeTrack the position of the stars with a simple instrument you make.Shooting StarsFind the right night, and get ready for the fun of a meteor shower.Space Explorer MobileExplore the details of space with a mobile you make and hang.Planetary WalkGet a better sense of the solar system by taking a planetary walk.Starry Night ObserverTake a closer look at the night sky, and write down what you see.Spot the PlanetsLearn to find Venus, Jupiter and other wandering stars.Star Brightness DetectorUse this cellophane detector to categorize the brightness of stars.Paint Speck ConstellationsTurn specks of paint into your own set of constellations.Go to the next page of science projects for kids: the incredible universe to find out how you can make a planetarium for star shows in your house.For more fun science projects for kids, check out: Make a planetarium, and you can create a representations of the night sky in your house. You'll find simple instructions in this science project for kids: the incredible universe. ©2007 Publications International, Ltd.Create a planetarium in your room.What You'll Need:Shoe box ScissorsStar chartPen or pencil Pin Tape Flashlight Books Step 1: On one end of a shoe box, cut a hole just big enough for a flashlight to fit into. Step 2: Cut a rectangle out of the other end of the shoe box. Step 3: Using the star guide, draw dots on a piece of paper to represent the stars of a constellation, and poke holes through the dots with a pin. Do this for several different constellations. Step 4: Put one of the sheets of paper over the rectangular hole in the box, and tape it in place. Step 5: Support the flashlight with a stack of books, and put it into the hole in the other end of the box. Step 6: In a darkened room, turn on the flashlight, and project your constellation onto a wall. Quiz your friends or family to see if they can identify the different constellations.Go to the next page of science projects for kids: the incredible universe for some easy steps to get more out of your star gazing.For more fun science projects for kids, check out: Star gazing is an easy way to teach yourself how to recognize the stars and constellations. Gather a few items, wait for a clear night, and you'll be ready for this science project for kids: the incredible universe.What You'll Need:Star chartClear nightFlashlight Piece of red cellophane Step 1: Get a star chart, and learn about the night sky. You can find one in many books at the library. Step 2: On a clear night, go outdoors and see if you can find the constellations in the sky. The stars move throughout the year, so you'll see different constellations at different times of year. Step 3: Look for the starting point for star-gazing, usually the North Star, also called Polaris. It's the only star that does not move. To find the North Star, find the Little Dipper. The last star on its handle is the North Star. Another way to find the North Star is to locate the Big Dipper and trace an imaginary line from the two stars in the dipper's front edge, leading up from the dipper. The North Star is along this line. Step 4: Once you've found the North Star, try to locate the other constellations. Use a flashlight to refer to your star chart. (Cover the flashlight with red cellophane so you can still see the stars when you look back up at the sky.)Keep reading on the next page to find out how you can fill your umbrella with constellations.For more fun science projects for kids, check out:Create your own private planetarium with an umbrella full of constellations. Find them, mark them, and save them to look at again another day. Have fun with this science project for kids: the incredible universe. ©2007 Publications International, Ltd. Mark constellations inside your umbrella.What You'll Need:Clear night when the moon is invisible or very smallBlack umbrella (that it's OK to mark up with chalk)White chalkStar chart Step 1: Open the umbrella, and hold it over your head. Step 2: Point the tip of the umbrella at the North Star. (Use a star chart to find the North Star.) Step 3: Look up at the underside of the umbrella. You may see the stars shining through. Step 4: Use white chalk to mark on the umbrella each place where you see a star. (This will be easier if someone else holds the umbrella for you.) If you can't see the stars through the umbrella, just look in the sky and mark the stars in the same positions as you see them in the sky. Step 5: When you've marked all the stars you can see, take the umbrella inside. Compare your marks to a star chart. What stars and constellations did you mark? Step 6: Draw lines connecting the constellations, and label them with their names. Go to the next page to find out how you can turn constellation punch-outs into a star theater.For more fun science projects for kids, check out:You'll be the star when you learn the shapes of some constellations and put on a show for the family with this star theater! ©2007 Publications International, Ltd.Turn constellation punch-outs into a star theater.What You'll Need:Empty steel cans (such as soup or coffee cans)PliersTracing paperBook of constellationsPenScissorsPinMasking tapeHammerThin finishing nailFlashlightBlack cloth (optional)Step 1: Clean the cans, and use pliers to flatten any sharp points. Step 2: Lay the end of the can on the tracing paper, and draw circles with a pencil. Step 3: Lay the marked tracing paper on a picture of a constellation in a book, and trace a constellation inside of each circle, using dots to represent stars. If a constellation won't fit in the circle, you can try drawing it free hand. Step 4: Cut out the circles, and use a pin to poke a hole where each star is marked. Step 5: Turn each circle over so the constellation is backward, and tape one to the closed end of the steel can. Step 6: Use a hammer and a thin finishing nail to punch a hole through each pin hole. (Always be careful when using a hammer!) Remove the paper.Step 7: Write the name of each constellation on a piece of masking tape, and attach each piece of masking tape to the can it represents. This is so you can remember which constellation is which. Step 8: Shine a flashlight into the open end of the can to shine the constellation on the ceiling. You can shroud the open end of the can in black cloth to shut out excess light when you put on a star show for your family.Have you ever wondered how big the solar system is? Go to the next page of science projects for kids: the incredible universe to find out by making a scale model with peas, fruits and nuts.For more fun science projects for kids, check out:Scale down the solar system with a scale model made of peas, fruit, and nuts. You'll have a better sense of the vast size of the solar system if you try this science project for kids: the incredible universe. ©2007 Publications International, Ltd.Make your own scale model of the solar system.You've probably seen lots of drawings and diagrams of the solar system. But, to make the drawings fit on a piece of paper, the artists have to draw the planets closer together than they really are. In this activity, you'll make a scale model of the solar system. You'll be surprised to see how much bigger some planets are than others, and how far apart some of them are.What You'll Need:Ball about 27 inches in diameter (such as a beach ball)5 peas1 orange1 tangerine2 walnutsTape measureLarge open space Step 1: Make your model in a large open space that will represent space. Step 2: Put the beach ball or other large ball at one end of the space. The ball is the sun. Step 3: Place the other objects as shown in the chart below. (Remember to measure each planet from the sun.)PlanetObject Distance from the Sun MercuryPea 1-3/4 inches VenusPea 3-1/4 inches EarthPea 4-1/2 inches MarsPea 7 inches JupiterOrange 2 feet SaturnTangerine 3 feet, 7 inches UranusWalnut 7 feet, 3 inches NeptuneWalnut 11 feet, 4 inches PlutoPea 14 feet, 10 inches Go to the next page to find out how you can make an astrolabe and measure the position of the stars.For more fun science projects for kids, check out:Learn how to measure the position of stars when you make an astrolabe. You'll be using a tool that astronomers and seafarers used for centuries when you do this science project for kids: the incredible universe.©2007 Publications International, Ltd. Make an astrolabe to track stars.When scientists describe the position of a star in the sky, they measure its position relative to the horizon. An astrolabe measures how high above the horizon the star is in degrees.What You'll Need:String Plastic protractor Weight (washer, rock, or fishing weight) Pen and paper Step 1: Tie a 12-inch piece of string to the hole in the middle of the crossbar on the protractor. Tie a weight to the other end. Step 2: Hold the protractor so that the curved part is down and the zero degree mark is closest to you. Step 3: Sit on the ground, and look along the flat edge of the protractor with your eye at the zero mark. Point the flat edge at the star whose position you want to measure. Step 4: Once you have the star at the end of your sight, hold the string against the side of the protractor. Step 5: Note which degree mark the string crosses. Write this down in your notebook. This number tells you how many degrees above the horizon your star is. Step 6: Take readings for several stars. Step 7: Return every 30 minutes, and take new readings. Notice the pattern in which the stars seem to move across the sky as the earth turns. Have you ever seen a shooting star? Go to the next page of science projects for kids: the incredible universe to find out how you can.For more fun science projects for kids, check out:Nothing is as unexpected and breathtaking as shooting stars, or meteors. Find out when and where you can scan the skies for meteor showers in this science project for kids: the incredible universe.©2007 Publications International, Ltd.Track shooting stars, or meteors, across the sky.Space is chock-full of tiny planet-like spheres known as asteroids. That is, they're tiny by space standards; a very small asteroid might fit inside your house. Millions of fragments from asteroids can fall into the Earth's atmosphere. When one of these fragments comes close to Earth and burns up, it makes a streak of light that can be seen in the night sky. This streak is called a meteor or a shooting star.Most of these fragments burn up completely in the atmosphere. But once in a while one lands on Earth. When that happens, it's called a meteorite.Sky-watchers have learned that there are certain times and places when lots of meteors can be seen. These events are called meteor showers, and they're worth staying up late for. What You'll Need:A clear night sky -- and maybe an afternoon napA spot away from city lightsStar mapStep 1: Check the chart below to find the next time of year when you can see meteor showers.Step 2: Use a star map to find the places listed. Step 3: Find a place away from city lights on a very clear night. (The best time to see meteors is after midnight.)Step 4: Be very still, watch the sky, and see what happens.WhenWhere It Can Be Seen in the Sky January 1-3 Eastern sky, between Bootes and Draco. This is called the Quadrantid meteor shower, and it's the flashiest one of the year! April 20-22 Northeastern sky, between Vega and Hercules. May 4-6 Eastern sky, to the southwest of the Square of Pegasus. August 10-13 Northeastern sky, around Perseus. Called the Perseids, this is the most famous meteor shower and is second only to the Quadrantids in the number of meteors. October 20-23 Eastern sky, between Orion and Gemini. November 3-10 Northeastern sky, between Taurus, Auriga and Perseus. December 10-12 Eastern sky, in Gemini.Go to the next page to see how you can be a space explorer with a mobile you make yourself.For more fun science projects for kids, check out:Imagine what it would be like to float among the planets, stars, and comets! If you hang a space explorer mobile in your room, you can look up and imagine you're up there. That's easy with this science project for kids: the incredible universe.©2007 Publications International, Ltd.Travel through the planets with a mobile.What You'll Need:ScissorsCardboard or heavy paperDecorations (paint, aluminum foil, or glitter)PinThread or nylon line2 dowel rods or sticks Step 1: Cut out and color shapes to make planets, stars, spaceships, and other objects found in outer space. Use interesting materials such as glow-in-the-dark paint, aluminum foil, and glitter. Also use your imagination, and include anything you think might be found in space: Alien monsters? Giant dough-nuts? It's your universe! Step 2: Use a pin to make a small hole in each shape you made. Step 3: Tie a piece of thread or nylon line through each hole. Step 4: Cross one dowel rod over the other at a right angle. Step 5: Tie the dowels together, then tie your shapes to the dowels. Tie different shapes at different heights. Step 6: Tie a strong thread or piece of nylon line around the dowels to hang your mobile. You've got your head in the stars!Get a better sense of the size of the solar system by taking a planetary walk. Find out how on the next page of science projects for kids: the incredible universe.For more fun science projects for kids, check out:Take a stroll through the solar system in just over 1,000 paces on this planetary walk! Have you ever wondered how far apart the planets really are? This science project for kids on the incredible universe will show you just how much space there is in the solar system.What You'll Need:Ball about 8 inches in diameter2 pins with small round heads1 pin with very small round head2 peppercorns1 small walnut1 acorn2 peanutsIndex cardsGlue or tapeBright markersYardstickLarge park or school groundsStep 1: Use the ball for the sun. Step 2: Glue or tape the "planets" to individual index cards, and use bright markers to label them as follows: The larger pinheads are Mercury and MarsThe smaller pin head is Pluto. The peppercorns are Venus and Earth. The walnut is Jupiter. The acorn is Saturn.The peanuts are Neptune and Uranus. Step 3: Use your own stride as a unit of measurement. With a yardstick, practice taking steps one yard long. Each step will represent 3.6 million miles! Step 4: Set your "sun" on the edge of a large park or on the sidewalk of a long, straight street. Step 5: Take 10 one-yard steps from the sun, and put down your Mercury card. Does this seem a long way away? Proportionally it's in the right place. Mercury is about 36 million miles from the sun. Step 6: Take nine more steps, and set down Venus. Step 7: Take seven steps, and put down Earth. Step 8: Take 14 steps, and put down Mars. You've already taken 40 steps from the sun. Earth and Mars look lonely so far from the sun and the other planets. Yet this is how they are in space. Step 9: From Mars, take 95 paces and set down Jupiter. From Jupiter, it's 112 steps to Saturn. Just 249 more paces take you to Uranus. You are halfway across the solar system! Step 10: Next is Neptune, which is 281 paces from Uranus. Step 11: From Neptune, take 242 paces, and put down your last card, Pluto. You've gone 1,019 paces, or just over a half a mile. The sun probably looks like a speck, if you can see it at all. If you were standing on Pluto's surface, the sun would look about as bright as the other stars around it. Pluto is, on the average, 3.66 trillion miles from the sun! The stars may all look the same, but they're not. Keep reading on the next page to learn how you can become a starry night observer.For more fun science projects for kids, check out:The stars may look the same, but if you become a starry night observer, you'll see that they're not. Are all stars the same color and brightness? Not at all. Try this science project for kids on the incredible universe, and you'll see. Each star has dozens of distinctive qualities and characteristics based on age, distance, and light pollution. What You'll Need:A clear nightNotebook Pencil or penStep 1: Take the time to study the starry night, and write down notes of the different colors and levels of brightness you see. Step 2: See if you can find out why some stars seem bigger, brighter, or more colorful than others. Step 3: Hit the library or your family encyclopedia to find out if all the lights in the sky are actually stars at all.That bright star in the morning sky may not be a star at all, but the planet Venus. Go to the next page of science projects for kids: the incredible universe to learn how to spot the planets in the sky.For more fun science projects for kids, check out:Can you spot the planets in the night sky? This science project for kids: the incredible universe can definitely help. Did you know that, of the nine planets in our solar system, five (besides Earth) can be seen with the naked eye? ©2007 Publications International, Ltd.Find Venus and other planets in the night sky.What You'll Need: Clear night skyBinocularsTelescope, if desired Star chart People in ancient times called the planets "wandering stars" because these bright objects appeared to change position while other stars seemed to stay in place. Try to spot the wandering stars yourself. You need only your eyes, but a pair of binoculars or a telescope offers a better look. Step 1: Go outside with your binoculars and look at the sky. Start with Venus, the easiest planet to find. Look in the western sky just after the sun goes down. You can also spot it in the early morning sky just before sunrise. Step 2: Do research on where to locate the rest of the planets, which are harder to find. You can consulting an almanac or planetary table to track their movements. Or you can watch your local newspaper or an astronomy magazine for information on which planets are visible. Step 3: Use a star chart to locate the constellation where the planet will be. The planets appear to move through the constellations associated with the zodiac, so become familiar with these constellations. Step 4: Once you spot a bright object that doesn't seem to belong to the constellation, try observing it through binoculars or a telescope. With most home telescopes, you can see the red spot on Jupiter and the rings of Saturn. Go to the next page to find out how you can make a star brightness detector.For more fun science projects for kids, check out:Some stars appear to be brighter than others, but how bright are they? This simple star brightness detector will give you a way to measure and categorize the brightness of stars. Overlapping cellophane strips are the key to this science project for kids: the incredible universe.©2007 Publications International, Ltd. Use cellophane strips to detect star brightness.What You'll Need:Clear night skyScissorsCardboardRulerColored cellophaneTapeStep 1: Cut four 1-3/4 inch rectangles next to each other on a piece of cardboard. Step 2: Tape one sheet of cellophane over all four rectangles. Step 3: Tape an overlapping sheet of cellophane over the last three rectangles. Step 4: Tape more cellophane over the last two rectangles, and finally a last overlapping sheet of cellophane on the last rectangle only. Step 5: View the night sky with your brightness detector. Notice you can see more stars when you look through fewer cellophane sheets. Only the light from the brightest stars is able to penetrate all four sheets. Step 6: Try to find a star that you can see with one sheet but not with two sheets. Call this a one star. Step 7: Find a star you can see with two sheets but not three. Call this a two star. Step 8: Find a star you can see with three sheets but not four, and call this a three star. Step 9: Call any star you can see through all four sheets is a four star. Step 10: Write down the number of each type of star that you see. Which type can you find most often? A star's brightness on Earth depends upon the amount of light the star is putting out and how far it is from Earth.Keep reading on the next page to find out how you can get creative with your own paint speck constellations.For more fun science projects for kids, check out:Make your own starry sky studded with paint speck constellations. You'll have the chance to be creative with this science project for kids: the incredible universe.©2007 Publications International, Ltd.Create your own paint speck constellations.Constellations are groups of stars in the sky. They are often given names based on their shape.Thousands of years ago, people noticed groups of stars and gave them names based on the shapes they seemed to form. Pegasus the Horse, Orion the Hunter, and Ursa Minor the Little Bear all got their names this way. Often, different cultures gave the groups their own names. What we call the Big Dipper, the Vikings called the Wagon, the Chinese called the Emperor's Chariot, and the English called a Plow. What You'll Need:Newspaper White paper Paint Paintbrush Pencil Step 1: Spread some newspaper over the floor or over a table. Place a sheet of white paper in the middle of the newspaper. Step 2: Dip a paintbrush into paint. Step 3: Hold the brush over the paper, and tap your hand so small paint specks fall on the paper. Step 4: Think of these as stars, and examine them for patterns or shapes you recognize that could be constellations. Step 5: When the paint has dried, connect the paint specks with a pencil to form shapes you can recognize. Step 6: Then paint more detailed pictures of the image. Write names for your constellations.For more fun science projects for kids, check out:ABOUT THE DESIGNERSPlanetary Walk by Maria Birmingham, Karen E. Bledsoe, and Kelly Milner HallsStarry Night Observer by Maria Birmingham, Karen E. Bledsoe, and Kelly Milner HallsSpot the Planets by Maria Birmingham, Karen E. Bledsoe, and Kelly Milner Halls