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Keeping your workplace drug-free is important for the safety of your workers and others around them. It can also protect you from liability in the event of an accident. Having a testing program in place can be an effective way to ensure that your workplace remains drug/alcohol-free. At Quick Labs, we offer a comprehensive range of employer testing services designed to help you maintain a safe workplace at every stage.Some of our most popular testing services for employers include: Pre Employment Screening On Site Testing Random Pool Management Instant Drug Testing DOT Drug Testing Occupational Screening We offer a range of highly-accurate testing methods, including hair, urine, fingernail, and breath tests. Not only can you count on the accuracy of your test results, you can also count on our always-affordable rates and convenient mobile testing options.We offer Personal Drug Testing, We also accept Quest Q Passports, E Screen Passports, and Formfox authorizations for Drug & Alcohol Testing. Regardless of the specific test you need, our certified collectors offer a number of testing services to fit your needs. With Quick Labs, you can trust that your results will be certified and accurate, regardless of the type of test.Drug Screening: Instant & Laboratory Based Screenings.Urine Drug ScreeningOral Fluids Drug ScreeningHair Follicle TestingBreath & Alcohol TestingDNA Testing:Legal DNA TestingPaternity TestingMaternity TestingGender Reveal:Gender early as 8 weeksResults within 24-72 hoursClinical Testing:Pregnancy TestingSTD TestingInfluenzaStrepWhen it comes to Lab testing, blood draws, drug testing and, alcohol screening, Quick Labs is your one-stop shop for all your testing needs. We work hard to create an experience that stands apart from the rest, and we believe that starts with our lab facilities.At our labs, we offer: Short wait times Friendly, accommodating staff Answers to your questions Custom testing program assistance Advanced, cutting-edge technology State-of-the-art testing equipment Instant test results in most cases Accurate test results At our facilities, we're happy to help individuals, business owners, schools, volunteer organizations, and governmental agencies. Whether you need random drug testing for your sports team, a post-accident breathalyzer test for an employee, court-admissible DNA testing, or a personal geology test, our team is ready to assist you. We even offer mobile, on-site testing with the same high quality as our laboratory facilities! We give you temporary credentials to Google Cloud Platform, so you can learn the cloud using the real thing – no simulations. From 30-minute individual labs to multi-day courses, from introductory level to expert, instructor-led or self-paced, with topics like machine learning, security, infrastructure, app dev, and more, we've got you covered.Google Cloud CommunitiesMeet industry peers, ask questions, collaborate to find answers, and connect with Googlers who are making the products you use every day. When you begin a new lab, you will be provided with temporary Cloud credentials so that you can access the lab environment. Make sure you're reviewed the lab instructions before starting your lab timer. To start a new lab: Open a new internet browser. Although all popular browsers are supported, for the best user experience it is highly recommended to use the latest version of Chrome OS. Please check your device here for compatibility. Sign in to your   Cloud Skills Boost account. If you do not have a   Cloud Skills Boost account, create a new account Select a lab by searching or browsing the Explore tab. Enable the labs toggle in the Format filters to limit your results to only labs. On the lab manual page, review all of the instructions for the lab. The timer in the upper left corner of the screen shows the total time you have to complete the lab. Click Start Lab. Labs are timed and can not be paused. The timer will not start until any required billing transactions have completed. Copy the username provided, and launch the lab environment. For best results, launch the lab environment in an incognito window. In the modal, login to the lab environment with the temporary credentials provided. If you see the Choose an account page, click Use Another Account You must use the credentials from the Connection Details panel. Do not use your   Cloud Skills Boost credentials. Accept the terms and conditions if required. On the Protect your Account page, do not add recovery options or two-factor authentication (because this is a temporary account). Click Done. After a few moments, the Google Project will open. When you finish the lab, click End Lab and leave a review comment. You could be locked out of your lab and lose your work if you attempt to use resources in your lab environment that are not a part of your lab. Only use resources specifically called out in the lab instructions. How to pay for a lab Once you click on Start Lab, a window will appear asking how you want to pay for the lab. To submit payment: Click launch with credits to pay with a credit card saved to your account Enter your access code to pay with access code Click Buy Credits to purchase credits or a subscription *If you have an active subscription, this screen will be bypassed Related articles The right learning plan for you Leverage free credits, choose a monthly option to dive into hands-on labs, or unlock the unique benefits of an annual subscription. Not sure which plan to choose? We've got you covered. Innovator No cost Quickest way to expand your knowledge of Google Cloud 35 free credits every month Earn badges and gain new skills Easy upgrade to premium Monthly $29 / mo Unlock the full catalog and access paths made for you Access to 700+ labs & courses Find curated learning paths Filter by role, skill and topic Developer Program Premium $299 / yr Unlimited access and over $1,500 in developer benefits $500 Google Cloud credits Live learning events 1:1 consultations with experts Need no-cost learning for your team? Check out Google Cloud Skills Boost for Organizations Innovators and Developer Program premium requires you to use a Google Account and a Developer Profile. For Customers in the EEA, the UK, and Switzerland, Google Developer Program - premium is restricted to business or professional use. magic_button Artificial Intelligence Diffusion Models Machine Learning Model Training These skills were generated by AI. Do you agree this course teaches these skills? 30 minutes Introductory This course introduces diffusion models, a family of machine learning models that recently showed promise in the image generation space. Diffusion models draw inspiration from physics, specifically thermodynamics. Within the last few years, diffusion models became popular in both research and industry. Diffusion models underpin many state-of-the-art image generation models and tools on Google Cloud. This course introduces you to the theory behind diffusion models and how to train and deploy them on Vertex AI. When you complete this course, you can earn the badge displayed here! View all the badges you have earned by visiting your profile page. Boost your cloud career by showing the world the skills you have developed! How diffusion models work Real use-cases for diffusion models Unconditioned diffusion models Advancements in diffusion models (text-to-image) Machine learning Deep learning Convolutional neural nets (CNNs) Python Programming Data scientists, machine learning engineers, researchers working on developing new image generation models and developers interested in building applications that use image generation English, español (Latinoamérica), français, עברית, bahasa Indonesia, italiano, 日本語, , português (Brasil), 简体中文, 繁體中文, Deutsch, and Türkçe What do I do when I finish this course? After finishing this course, you can explore additional content in your learning path or browse the catalog. Upon finishing the required items in a course, you will earn a badge of completion. Badges can be viewed on your profile and shared with your social network. Interested in taking this course with one of our authorized on-demand partners? Explore Google Cloud content on Coursera and Pluralsight. Prefer learning with an instructor? View the public classroom schedule here. Can I take this course for free? When you enroll into most courses, you will be able to consume course materials like videos and documents for free. If a course consists of labs, you will need to purchase an individual subscription or credits to be able consume the labs. Labs can also be unlocked by any campaigns you participate in. All required activities in a course must be completed to be awarded the completion badge. If there is one thing that is guaranteed to get your students excited, it's a good science experiment! While some experiments require expensive lab equipment or dangerous chemicals, there are plenty of cool projects you can do with regular household items. We've rounded up a big collection of easy science experiments that anybody can try, and kids are going to love them! Jump to: Also, be sure to grab your free printable science experiment recording sheet to use with any of the experiments below. Myranda McDonald for We Are Teachers Toucan Box Teach your students about diffusion while creating a beautiful and tasty rainbow. Tip: Have extra Skittles on hand so your class can eat a few! Learn more: Skittles Diffusion Growing a Jeweled Rose Crystal science experiments teach kids about supersaturated solutions. This one is easy to do at home, and the results are absolutely delicious! Learn more: Rock Candy Experiment All you need is a zip-top plastic bag, sharp pencils, and water to blow your kids' minds. Once they're suitably impressed, teach them how the "trick" works by explaining the chemistry of polymers. Learn more: Leakproof Bag (Guide + Printable Reflection Sheet) Teaching With Jennifer Findley Have students make predictions about what will happen to apple slices when immersed in different liquids, then put those predictions to the test. Have them record their observations. Learn more: Apple Oxidation Their eyes will pop out of their heads when you "levitate" a stick figure right off the table! This experiment works due to the insolubility of dry-erase marker ink in water, combined with the lighter density of the ink. Learn more: Floating Marker Man STEAMsational There are a lot of easy science experiments you can do with density. This one is extremely simple, involving only hot and cold water and food coloring, but the visuals make it appealing and fun. Learn more: Hot and Cold Water Science Experiment Wonder How To This density demo is a little more complicated, but the effects are spectacular. Slowly layer liquids like honey, dish soap, water, and rubbing alcohol in a glass. Kids will be amazed when the liquids float one on top of the other like magic (except it is really science). Learn more: Layered Liquids KiwiCo Easy science experiments can still have impressive results. This eye-popping chemical reaction demonstration only requires simple supplies like sugar, baking soda, and sand. Learn more: Carbon Sugar Snake Come Together Kids These homemade bouncy balls are easy to make since all you need is glue, food coloring, borax powder, cornstarch, and warm water. You'll want to store them inside a container like a plastic egg because they will flatten out over time. Learn more: Make-Your-Own Bouncy Balls Kidspot Eggshells contain calcium, the same material that makes chalk. Grind them up and mix them with flour, water, and food coloring to make your very own sidewalk chalk. Learn more: Eggshell Chalk This sounds a lot more complicated than it is, but don't be afraid to give it a try. Use simple kitchen supplies to create plastic polymers from plain old milk. Sculpt them into cool shapes when you're done. Education Possible Teach kids about acids and bases without needing pH test strips. Simply boil some red cabbage and use the resulting water to test various substances—acids turn red and bases turn green. Learn more: Cabbage pH Gally Kids Use common household items to make old oxidized coins clean and shiny again in this simple chemistry experiment. Ask kids to predict (hypothesize) which will work best, then expand the learning by doing some research to explain the results. Learn more: Cleaning Coins Left Brain Craft Brain This classic easy science experiment never fails to delight. Use the power of air pressure to suck a hard-boiled egg into a jar, no hands required. Learn more: Egg in a Bottle Chances are good you probably did easy science experiments like this when you were in school. The baking soda and vinegar balloon experiment demonstrates the reactions between acids and bases when you fill a bottle with vinegar and a balloon with baking soda. Learn more: Baking Soda and Vinegar Balloon (Guide + Printable Reflection Sheet) This 1970s trend is back—as an easy science experiment! This activity combines acid-base reactions with density for a totally groovy result. Feels Like Home The calcium content of eggshells makes them a great stand-in for teeth. Use eggs to explore how soda and juice can stain teeth and wear down the enamel. Expand your learning by trying different toothpaste-and-toothbrush combinations to see how effective they are. Learn more: Sugar and Teeth Experiment If your kids are fascinated by the Egyptians, they'll love learning to mummify a hot dog! No need for canopic jars, just grab some baking soda and get started. This is a fiery twist on acid-base experiments. Light a candle and talk about what fire needs in order to survive. Then, create an acid-base reaction and "pour" the carbon dioxide to extinguish the flame. The CO2 gas acts like a liquid, suffocating the fire. KiwiCo Turn your kids into secret agents. Write messages with a paintbrush dipped in lemon juice, then hold the paper over a heat source and watch the invisible become visible as oxidation goes to work. Learn more: Invisible Ink Coffee Cups and Crayons Hot air rises, and this experiment can prove it. You'll want to supervise kids with fire, of course. For added safety, try this one outside. Learn more: Flying Tea Bags Team Cartwright Learn about Charles's law with this simple experiment. As the candle burns, using up oxygen and heating the air in the glass, the water rises as if by magic. Learn more: Rising Water Experiment 123 Homeschool 4 Me Kids will be amazed as they watch the colored water move from glass to glass, and you'll love the easy and inexpensive setup. Gather some water, paper towels, and food coloring to teach the scientific magic of capillary action. Learn more: Capillary Action Go Science Girls Equally educational and fun, this experiment will teach kids about static electricity using everyday materials. Kids will get a kick out of creating beards on their balloon people! Learn more: Static Electricity STEAM Powered Family Here's an old classic that never fails to impress. Magnetize a needle, float it on the water's surface, and it will always point north. Learn more: How To Make a Compass Sure, it's easy to crush a soda can with your bare hands, but what if you could do it without touching it at all? That's the power of air pressure! PBS Kids While people use clocks or even phones to tell time today, there was a time when a sundial was the best means to do that. Kids can create their own sundials using everyday materials like cardboard and pencils. Learn more: Make Your Own Sundial The Homeschool Scientist All you need is steel wool and a 9-volt battery to perform this science demo that's bound to make their eyes light up! Kids learn about chain reactions, chemical changes, and more. Learn more: Steel Wool Electricity This experiment is really all about Bernoulli's principle. You only need plastic bottles, bendy straws, and Ping-Pong balls to make the science magic happen. Cool Science Experiments HQ There are plenty of versions of this classic experiment out there, but we love this one because it sparkles. Kids learn about a vortex and what it takes to create one. Learn more: Tornado in a Bottle KC Edventures This simple but effective DIY science project teaches kids about air pressure and meteorology. They'll have fun tracking and predicting the weather with their very own barometer. Learn more: How To Make a Barometer STEAMsational Students will certainly get a thrill out of seeing how an everyday object like a piece of ice can be used as a magnifying glass. Be sure to use purified or distilled water since tap water will have impurities in it that will cause distortion. Learn more: Ice Magnifying Glass Playdough to Plato Can you lift an ice cube using just a piece of string? This quick experiment teaches you how. Use a little salt to melt the ice and then refreeze the ice with the string attached. Learn more: Sticky Ice We love how simple this project is to re-create since all you'll need are some white carnations, food coloring, glasses, and water. The end result is just so beautiful! Everyone knows that glitter is just like germs—it gets everywhere and is so hard to get rid of! Use that to your advantage and show kids how soap fights glitter and germs. Grade School Giggles Teach Beside Me Your backyard is a terrific place for easy science experiments. Grab a plastic bag and rubber band to learn how plants get rid of excess water they don't need, a process known as transpiration. Learn more: Plant Transpiration The Coalition for Science After School Before conducting this experiment, teach your students about engineers who solve environmental problems like oil spills. Then, have your students use provided materials to clean the oil spill from their oceans. Learn more: Oil Spill Surviving a Teacher's Salary Kids get a better understanding of the respiratory system when they build model lungs using a plastic water bottle and some balloons. You can modify the experiment to demonstrate the effects of smoking too. Learn more: Lung Science Experiment KC Edventures Kids love to collect rocks, and there are plenty of easy science experiments you can do with them. In this one, pour vinegar over a rock to see if it bubbles. If it does, you've found limestone! Learn more: Limestone Experiments NurtureStore All you need is a plastic bottle, a ruler, and a permanent marker to make your own rain gauge. Monitor your measurements and see how they stack up against meteorology reports in your area. Learn more: How To Make a Rain Gauge The Chaos and the Clutter This clever demonstration helps kids understand how some landforms are created. Use layers of towels to represent rock layers and boxes for continents. Then pu-u-u-sh and see what happens! Learn more: Towel Mountains Mystery Science Use the video lesson in the link below to learn why stars are only visible at night. Then create a DIY star projector to explore the concept hands-on. Learn more: DIY Star Projector Mrs. Jones' Creation Station Use shaving cream and food coloring to simulate clouds and rain. This is an easy science experiment little ones will beg to do over and over. Learn more: Shaving Cream Rain This is such a cool (and easy!) way to look at fingerprint patterns. Inflate a balloon a bit, use some ink to put a fingerprint on it, then blow it up big to see your fingerprint in detail. Hess UnAcademy Twizzlers, gumdrops, and a few toothpicks are all you need to make this super-fun (and yummy!) DNA model. Learn more: Edible DNA Model Take a nature walk and find a flower or two. Then bring them home and take them apart to discover all the different parts of flowers. Mum in the Madhouse No Bluetooth speaker? No problem! Put together your own from paper cups and toilet paper tubes. Learn more: Smartphone Speakers ProLab Kids will be amazed when they learn they can put together this awesome racer using cardboard and bottle-cap wheels. The balloon-powered "engine" is so much fun too. Learn more: Balloon-Powered Car eHow You've probably ridden on a Ferris wheel, but can you build one? Stock up on wood craft sticks and find out! Play around with different designs to see which one works best. Learn more: Craft Stick Ferris Wheel There are lots of ways to craft a DIY phone stand, which makes this a perfect creative-thinking STEM challenge. Put all their engineering skills to the test with an egg drop! Challenge kids to build a container from stuff they find around the house that will protect an egg from a long fall (this is especially fun to do from upper-story windows). Learn more: Egg Drop Challenge Ideas Frugal Fun for Boys and Girls STEM challenges are always a hit with kids. We love this one, which only requires basic supplies like drinking straws. Learn more: Straw Roller Coaster Explore the power of the sun when you build your own solar ovens and use them to cook some yummy treats. This experiment takes a little more time and effort, but the results are always impressive. The link below has complete instructions. Learn more: Solar Oven (Guide + Printable Reflection Sheet) iGame Mom There are plenty of bridge-building experiments out there, but this one is unique. It's inspired by Leonardo da Vinci's 500-year-old self-supporting wooden bridge. Learn how to build it at the link, and expand your learning by exploring more about Da Vinci himself. Learn more: Da Vinci Bridge This is one easy science experiment that never fails to astonish. With carefully placed scissor cuts on an index card, you can make a loop large enough to fit a (small) human body through! Kids will be wowed as they learn about surface area. Science Sparks Combine physics and engineering and challenge kids to create a paper cup structure that can support their weight. This is a cool project for aspiring architects. Learn more: Paper Cup Stack Inspiration Laboratories Gather a variety of materials (try tissues, handkerchiefs, plastic bags, etc.) and see which ones make the best parachutes. You can also find out how they're affected by windy days or find out which ones work in the rain. Learn more: How To Make a Parachute STEM Activities for Kids It's amazing how a stack of newspapers can spark such creative engineering. Challenge kids to build a tower, support a book, or even build a chair using only newspaper and tape! Learn more: Newspaper STEM Challenge Science Sparks and Life at the Zoo Explore the ways that sound waves are affected by what's around them using a simple rubber-band "guitar." (Kids absolutely love playing with these!) Learn more: Sound Experiment Raising Lifelong Learners Challenge students to engineer the best possible umbrella from various household supplies. Encourage them to plan, draw blueprints, and test their creations using the scientific method. Learn more: Umbrella STEM Challenge Turn science into a sweet treat by making rock candy. Dissolve sugar in hot water to create a solution, then let it cool as crystals slowly form on a stick or string. The best part is that the kids get to eat their experiment when it's done! Bring weather science indoors with this fun hands-on project. Use shaving cream to mimic clouds and add drops of food coloring to simulate rain. It's a great way to explore the water cycle without even having to step outside! Make your science lesson more vibrant with a splash of color. Drop celery stalks into glasses of water with food dye, and watch as the beautiful colors travel up through the stems. Myranda McDonald for We Are Teachers Just fill out the form on this page to get instant access to your free printable experiment recording sheet. 01 Google Cloud Computing Foundations: Cloud Computing Fundamentals The Google Cloud Computing Foundations courses are for individuals with little to no background or experience in cloud computing. They provide an overview of concepts central to cloud basics, big data, and machine learning, and where and how Google Cloud... Page 2 When you complete this course, you can earn the badge displayed here! View all the badges you have earned by visiting your profile page. Boost your cloud career by showing the world the skills you have developed! Google Cloud Skills Boost Apply your skills in Google Cloud console With 980+ learning activities to choose from, Google Cloud has designed our comprehensive catalog with you in mind. The catalog consists of a variety of activity formats for you to pick from. Choose from bite-size individual labs or multi-module courses that consist of videos, documents, labs, and quizzes. Our labs give you temporary credentials to actual cloud resources, so you can learn Google Cloud using the real thing. Earn badges for what you complete, define, track, and measure your success with Google Cloud. Privacy Terms Manage cookies Powered by Google Cloud Skills Boost Apply your skills in Google Cloud console Upskill yourself or your team with Google Cloud Skills Boost. From beginners to experts, find the credentials and trainings you need to achieve your goals. Skill up on AI today AI isn't a future state. It's here to stay. With more than a decade of AI innovation and integration in the cloud, Google is your trusted partner in navigating this new reality. Featured Artificial Intelligence Vertex AI Gemini AutoML Prompt design Explore the full catalog Developer? Become an Innovator. Continuous learning starts with community. Join the Innovators community and fuel your cloud journey with 35 free monthly credits for hands-on learning with Google Cloud Skills Boost. Join Google Cloud Innovators For teams Try instructor-led training Which Google Cloud credential is right for you? Certifications can be a big step, and a big investment. Need to build your skills first? Explore our Skill Badges and Certificates. Prove your cloud expertise and validate your skills with industry-recognized certifications. Explore certifications These hands-on digital credentials demonstrate how your skills apply in real-world scenarios. Explore skill badges Certificates are a great way to start your cloud career and build the skills for in-demand roles. Explore certificates Whether you're all-in on AI, just want to brush up on the latest, or you're here to skill up your team— welcome to Google Cloud Skills Boost. Get started Privacy Terms Manage cookies Powered by Today, we're excited to announce the acquisition of Qwiklabs. Founded in 2012, Qwiklabs provides hands-on lab learning environments for leading cloud platforms and infrastructure software vendors. There's no faster way to get hands-on experience with a cloud environment and to learn all the ins and outs of today's modern cloud solutions than in a Qwiklabs lab. Qwiklabs offers step-by-step instructions to learn a popular cloud service, test different use cases and train your teams to become cloud experts.With Qwiklabs, we're closing the IP skills gap in the cloud. More than half a million users have collectively spent over 5 million hours learning how to successfully deploy and manage multiple cloud technologies through the Qwiklabs platform. We're focused on offering the most comprehensive, efficient, and fun way to train and onboard people across all our products on Google Cloud, including Google Cloud Platform and G Suite. We want to help businesses get the most out of their cloud investment and, with Qwiklabs, we'll give users a place to learn and expand their cloud skills to deliver more innovation, more features and more efficiency for their customers.We're thrilled to welcome Qwiklabs to Google Cloud. Stay tuned for more from the Qwiklabs team at Next '17! About this game This is a game built with machine learning. You draw, and a neural network tries to guess what you're drawing. Of course, it doesn't always work. But the more you play with it, the more it will learn. So far we have trained it on a few hundred concepts, and we hope to add more over time. We made this as an example of how you can use machine learning in fun ways. Watch the video below to learn about how it works, and Built by Jonas Jongejan, Henry Rowley, Takashi Kawashima, Jongmin Kim, Nick Fox-Gieg, with friends at Google Creative Lab and Data Arts Team. school 13 activities update Last updated 8 months person Managed by Google Cloud A Data Engineer designs and builds systems that collect and transform the data used to inform business decisions. This learning path guides you through a curated collection of on-demand courses, labs, and skill badges that provide you with real-world, hands-on experience using Google Cloud technologies essential to the Data Engineer role. Once you complete the path, check out the Google Cloud Data Engineer certification to take the next steps in your professional journey. Start learning path 01 A Tour of Google Cloud Hands-on Labs In this first hands-on lab you will access the Google Cloud console and use these basic Google Cloud features: Projects, Resources, IAM Users, Roles, Permissions, and APIs. 02 Preparing for your Professional Data Engineer Journey This course helps learners create a study plan for the PDE (Professional Data Engineer) certification exam. Learners explore the breadth and scope of the domains covered in the exam. Learners assess their exam readiness and create their individual study plan. 03 Introduction to Data Engineering on Google Cloud access_time 9 hours 30 minutes In this course, you learn about data engineering on Google Cloud, the roles and responsibilities of data engineers, and how those map to offerings provided by Google Cloud. You also learn about ways to address data engineering challenges. 04 Modernizing Data Lakes and Data Warehouses with Google Cloud The two key components of any data pipeline are data lakes and warehouses. This course highlights use-cases for each type of storage and dives into the available data lake and warehouse solutions on Google Cloud in technical detail. Also, this... 05 Building Batch Data Pipelines on Google Cloud Data pipelines typically fall under one of the Extract and Load (EL), Extract, Load and Transform (ELT) or Extract, Transform and Load (ETL) paradigms. This course describes which paradigm should be used and when for batch data. Furthermore, this course... 06 Building Resilient Streaming Analytics Systems on Google Cloud access_time 12 hours 15 minutes Processing streaming data is becoming increasingly popular as streaming enables businesses to get real-time metrics on business operations. This course covers how to build streaming data pipelines on Google Cloud. Pub/Sub is described for handling incoming streaming data. The course... 07 Serverless Data Processing with Dataflow: Foundations This course is part 1 of a 3-course series on Serverless Data Processing with Dataflow. In this first course, we start with a refresher of what Apache Beam is and its relationship with Dataflow. Next, we talk about the Apache... 08 Serverless Data Processing with Dataflow: Develop Pipelines In this second installment of the Dataflow course series, we are going to be diving deeper on developing pipelines using the Beam SDK. We start with a review of Apache Beam concepts. Next, we discuss processing streaming data using windows,... 09 Serverless Data Processing with Dataflow: Operations access_time 14 hours 45 minutes In the last installment of the Dataflow course series, we will introduce the components of the Dataflow operational model. We will examine tools and techniques for troubleshooting and optimizing pipeline performance. We will then review testing, deployment, and reliability best... 10 Build a Data Warehouse with BigQuery access_time 5 hours 15 minutes Complete the intermediate Build a Data Warehouse with BigQuery skill badge to demonstrate skills in the following: joining data to create new tables, troubleshooting joins, appending data with unions, creating date-partitioned tables, and working with JSON, arrays, and structs in... 11 Build a Data Mesh with Dataplex access_time 5 hours 30 minutes Complete the introductory Build a Data Mesh with Dataplex skill badge to demonstrate skills in the following: building a data mesh with Dataplex to facilitate data security, governance, and discovery on Google Cloud. You practice and test your skills in... 12 Boost Productivity with Gemini in BigQuery This course explores Gemini in BigQuery, a suite of AI-driven features to assist data-to-AI workflow. These features include data exploration and preparation, code generation and troubleshooting, and workflow discovery and visualization. Through conceptual explanations, a practical use case, and hands-on... 13 Work with Gemini Models in BigQuery This course demonstrates how to use AI/ML models for generative AI tasks in BigQuery. Through a practical use case involving customer relationship management, you learn the workflow of solving a business problem with Gemini models. To facilitate comprehension, the course... Overview Google Cloud is a suite of cloud services hosted on Google's infrastructure. From computing and storage to data analytics, machine learning, and networking, Google Cloud offers a wide variety of services and APIs that can be integrated with any cloud-computing application or project, from personal to enterprise-grade. Google Cloud Skills Boost is where you can access Google Cloud's entire catalog of labs and courses. You can discover learning paths, build in-demand cloud skills, track your activity progress, and validate your knowledge with badges. Qwiklabs is the technology platform the labs and courses sit on. You may see the Qwiklabs name in your Google Cloud learning adventure. In this introductory-level lab, you take your first steps with Google Cloud by getting hands-on practice with the Cloud console—an in-browser UI that lets you access and manage Google Cloud services. You will identify key features of Google Cloud and also learn about the details of the lab environment. If you are new to cloud computing or looking for an overview of Google Cloud and the Qwiklabs platform, you are in the right place. Read on to learn about the specifics of this lab and areas that you will get hands-on practice with. Objectives In this lab, you learn how to perform the following tasks: Access the Cloud console with specific credentials to explore the lab platform and identify key features of a lab environment. View various Google Cloud projects and identify common misconceptions about them. Use the Google Cloud console navigation menu to identify types of Google Cloud services. Manage basic roles and use the Cloud IAM service to inspect actions available to specific users. Explore the API library and examine its chief features. Prerequisites This is an introductory-level lab and the first lab you should take if you're unfamiliar with Google Cloud. If you are already experienced with Cloud console, consider taking one of the following labs: Get Started with Cloud Shell and gcloud Create a Virtual Machine If you decide to take one of these labs, be sure to end this lab now. If you have a personal or corporate Google Cloud account or project, sign out of that account. If you stay logged in to your personal/corporate account and run the lab in the same browser, your credentials could get confused, resulting in getting logged out of the lab accidentally. If you are using a Pixelbook, run your lab in an Incognito window. Lab fundamentals Features and components Regardless of topic or expertise level, all labs share a common interface. The lab that you're taking should look similar to this: Note: You are not taking the "Creating a Virtual Machine" lab shown in the image; it is used as an example to highlight common features across labs. Read the following lab component definitions, and then locate them in the interface. Start Lab (button) Clicking this button creates a temporary Google Cloud environment, with all the necessary services and credentials enabled, so you can get hands-on practice with the lab's material. This also starts a countdown timer. Credit The price of a lab. 1 Credit is usually equivalent to 1 US dollar (discounts are available when you purchase credits in bulk). Some introductory-level labs (like this one) are free. The more specialized labs cost more because they involve heavier computing tasks and demand more Google Cloud resources. Time Specifies the amount of time you have to complete a lab. When you click the Start Lab button, the timer counts down until it reaches 00:00:00. When it does, your temporary Google Cloud environment and resources are deleted. Ample time is given to complete a lab, but make sure you don't work on something else while a lab is running: you risk losing all of your hard work! Score Many labs include a score. This feature is called "activity tracking" and ensures that you complete specified steps in a lab. To pass a lab with activity tracking, you need to complete all the steps in order. Only then can you receive completion credit. Paying for a lab Some labs are free, but others require you to pay. For those, when you click the Start Lab button, a dialog gives you the choice to launch the lab with an access code or credits. If you don't have either, click Buy credits and follow the instructions. Reading and following instructions This browser tab contains the lab instructions. When you start a lab, the Google Cloud console user interface opens in a new browser tab. You may need to switch between the two browser tabs to read the instructions and then perform the tasks. Depending on your physical computer setup, you could also move the two tabs to separate monitors. Test your understanding Answer the following multiple-choice questions to reinforce your understanding of the concepts covered so far. Task 1. Access the Cloud console Start the lab Now that you understand the key features and components of a lab, click Start Lab. It may take a moment for the Google Cloud environment and credentials to spin up. When the timer starts counting down and the Start Lab button changes to a red End Lab button, everything is in place and you're ready to sign in to the Cloud console. Note: Do not click the End Lab button until you have completed all the tasks in the lab. When you click the button, your temporary credentials are invalidated and you won't be able to access the work you've done throughout the lab. You must click this button when you finish; if you do not, you won't be able to take another lab. (The Qwiklabs platform has protections in place to prevent concurrent enrollment.) Lab details pane Now that your lab instance is up and running, refer to the Lab details pane on the left. It contains an Open Google Cloud console button, credentials (username and password), and a Project ID field. Note: Your credentials should resemble but won't match the image; every lab instance generates new temporary credentials. Now examine each of these components. Open Google Cloud console This button opens the Cloud console: the web console and central development hub for Google Cloud. You do the majority of your work in Google Cloud from the interface that this button launches. Username and Password These credentials represent an identity in the Cloud Identity and Access Management (Cloud IAM) service. This identity has access permissions (a role or roles) that allow you to work with Google Cloud resources in the project you've been allocated. For the purposes of a lab, these credentials are temporary and only work for the duration of the lab. When the timer reaches 00:00:00, you no longer have access to your Google Cloud project with temporary, lab-assigned credentials. Project ID A Google Cloud project is an organizing entity for your Google Cloud resources. It often contains resources and services; for example, it may hold a pool of virtual machines, a set of databases, and a network that connects them together. Projects also contain settings and permissions, which specify security rules and who has access to what resources. A Project ID is a unique identifier that is used to link Google Cloud resources and APIs to your specific project. Project IDs are unique across Google Cloud: there can be only one qwiklabs-gcp-xxx...., which makes it globally identifiable. Sign in to Google Cloud Now that you have a better understanding of the Lab details pane, use its contents to sign in to the Cloud console. Click Open Google Cloud console. This opens the Google Cloud sign-in page in a new browser tab. If you've ever signed in to a Google application like Gmail, this page should look familiar. Tip Open the tabs in separate windows, side-by-side. Note: If the Choose an account page opens, click Use Another Account. The Username from the Lab Details pane automatically fills in. Click Next. Wait! Make sure to use the student-xx-xxxxxx@qwiklabs.net email to sign in, NOT your personal or company email address! Note: The username that resembles student-xx-xxxxxx@qwiklabs.net is a Google account that was created for your use as a student. It has a specific domain name, which is qwiklabs.net, and has been assigned IAM roles that allow you to access the Google Cloud project that you have been provisioned. Copy the Password from the Lab details pane, paste it in the Password field, and click Next. Click I understand to indicate your acknowledgement of Google's terms of service and privacy policy. On the Welcome page, check Terms of Service to agree to Google Cloud's terms of service, and click Agree and continue. You've successfully accessed the Cloud console with your student credentials! Test your understanding Answer the following multiple-choice questions to reinforce your understanding of the concepts covered so far. Now that you have signed in to the Cloud console and understand the basics of your credentials, it's time to learn a little bit more about Google Cloud projects. Task 2. View projects in the Cloud console Google Cloud projects were explained in the section about the contents of the Lab details pane. Here's the definition once again: A Google Cloud project is an organizing entity for your Google Cloud resources. It often contains resources and services; for example, it may hold a pool of virtual machines, a set of databases, and a network that connects them together. Projects also contain settings and permissions, which specify security rules and who has access to what resources. The upper-left corner of the central pane contains a card labeled Project info. Your project has a name, number, and ID. These identifiers are frequently used when interacting with Google Cloud services. You are working with one project to get experience with a specific service or feature of Google Cloud. View all projects In this lab, you actually have access to more than one Google Cloud project. In fact, in some labs you may be given more than one project in order to complete the assigned tasks. In the Google Cloud console title bar, next to your project name, click the drop-down menu. In the Select a project dialog, click All. The resulting list of projects includes a "Qwiklabs Resources" project. Note: Do not switch over to the Qwiklabs Resources project at this point! However, you may need to use it in other labs. It's not uncommon for large enterprises or experienced users of Google Cloud to have dozens to thousands of Google Cloud projects. Organizations use Google Cloud in different ways, so projects are a good method for organizing cloud computing services (by team or product, for example.) The "Qwiklabs Resources" project contains files, datasets, and machine images for certain labs and can be accessed from every Google Cloud lab environment. It's important to note that "Qwiklabs Resources" is shared (read-only) with all student users, which means that you cannot delete or modify it. The Google Cloud project that you are working with is temporary, which means that the project and everything it contains gets deleted when the lab ends. Whenever you start a new lab, you are given access to one or more new Google Cloud projects, and that (not "Qwiklabs Resources") is where you run all of the lab steps. Click Cancel to return to the Cloud overview page. Test your understanding Answer the following multiple-choice questions to reinforce your understanding of the concepts covered so far. Navigation menu and services The Google Cloud console title bar also contains the Navigation menu. Clicking this icon opens (or hides) the Navigation menu that provides quick access to Google Cloud's core services. If the menu isn't open, click the Navigation menu. Click View all Products, then scroll through the categories of tools and services. You can refer to the Google Cloud products overview page for documentation that covers each of these categories in more detail. Task 3. Review and modify roles and permissions In addition to cloud computing services, Google Cloud also contains a collection of permissions and roles that define who has access to what resources. You can use the Cloud Identity and Access Management (Cloud IAM) service to inspect and modify roles and permissions. View your roles and permissions On the Navigation menu (), click IAM & Admin > IAM. This opens a page that contains a list of users, permissions, and roles granted to specific accounts. Find the student "@qwiklabs" username you signed in to the lab with. The Principal column displays student-xx-xxxxxx@qwiklabs.net (Your matches the username you signed in with). The Name column displays student XXXXXXXX. The Role column displays Editor, which is one of three basic roles offered by Google Cloud. Basic roles set project-level permissions and, unless otherwise specified, control access and management to all Google Cloud services. The following table pulls definitions from the roles documentation, which gives a brief overview of viewer, editor, and owner role permissions. Role Name Permissions roles/viewer Permissions for read-only actions that do not affect state, such as viewing (but not modifying) existing resources or data. roles/editor All viewer permissions, plus permissions for actions that modify state, such as changing existing resources. roles/owner All editor permissions and permissions for the following actions: manage roles and permissions for a project and all resources within the project; set up billing for a project. As an editor, you can create, modify, and delete Google Cloud resources. However, you can't add or delete members from Google Cloud projects. Grant an IAM role In this section, you make a simple IAM update to grant a principal the viewer role on the project. On the Navigation menu (), click IAM & Admin > IAM. Click Grant access. In the Add principals section, enter an identifier for the principal. From the Select a role drop-down menu in the Assign roles section, search for Viewer, then click Viewer. Click Save. Verify that the principal and the corresponding role are listed on the IAM page. You have successfully granted an IAM role to a second student account. Note: You now encounter a unique feature called Activity Tracking that assesses completion of a task. As you complete tasks and verify these with 'Check my progress' tests, notice that your score increases in the box in the upper right corner. This scoring determines lab completion towards the accomplishment of badges and credentials. Scoring also contributes to leaderboard position in lab games. In this case, Activity Tracking is provided to verify whether you have granted the IAM role. Click Check my progress to verify the objective. Grant an IAM role Test your understanding Answer the following multiple-choice questions to reinforce your understanding of the concepts covered so far. Task 4. Enable APIs and services Google Cloud APIs are a key part of Google Cloud. Like services, the 200+ APIs range in areas from business administration to machine learning and all easily integrate with Google Cloud projects and applications. APIs are application programming interfaces that you can call directly or via the client libraries. Cloud APIs use resource-oriented design principles as described in the API Design Guide. When a lab provides a new Google Cloud project for a lab instance, it enables many APIs automatically so you can quickly start work on the lab's tasks. When you create your own Google Cloud projects outside of the lab environment, you will have to enable APIs yourself. Most Cloud APIs provide you with detailed information on your project's usage of that API, including traffic levels, error rates, and even latencies, which helps you quickly triage problems with applications that use Google services. On the Navigation menu (), click APIs & Services > Library. The left pane, under the header Category, displays the different categories available. In the API search bar, type Dialogflow, and then click Dialogflow API. The Dialogflow description page opens. The Dialogflow API allows you to build rich conversational applications (e.g., for Google Assistant) without having to understand the underlying machine learning and natural language schema. Click Enable. Click the back button in your browser to verify that the API is now enabled. Click Try this API. A new browser tab displays documentation for the Dialogflow API. Explore this information, and close the tab when you're finished. To return to the main page of the Cloud console, on the Navigation menu, click Cloud overview. Click Check my progress to verify the objective. Enable the Dialogflow API If you're interested in learning more about APIs, refer to the Google APIs Explorer Directory. The lab, APIs Explorer: Qwik Start, also provides hands-on experience with the tool, using a simple example including traffic levels, error rates, and even latencies, which helps you quickly triage problems with applications that use Google services. Test your understanding Answer the following multiple-choice question to reinforce your understanding of the concepts covered so far. Task 5. End your lab When you're finished with the lab, click End Lab and then click Submit to confirm it. Please rate each lab you take. Give the lab five stars if you were satisfied, something less if you weren't. Leave comments about your experiences in the Comment window; Google always appreciates thoughtful feedback. Ending a lab removes your access to the Google Cloud project and the work you've done in it. If you return to the Cloud console, note that you've been signed out automatically. You can close that tab now. Congratulations! In just 30 minutes, you developed a solid understanding of the Cloud console and the platform's key features. You learned about projects, roles, and the types of services the platform offers. You also practiced with Cloud IAM and the API libraries. You are now ready to take more labs. Take your next lab Continue learning with Create a Virtual Machine, or check out these other Google Cloud Skills Boost labs: Google Cloud training and certification ...helps you make the most of Google Cloud technologies. Our classes include technical skills and best practices to help you get up to speed quickly and continue your learning journey. We offer fundamental to advanced level training, with on-demand, live, and virtual options to suit your busy schedule. Certifications help you validate and prove your skill and expertise in Google Cloud technologies. Manual Last Updated January 07, 2025 Lab Last Tested January 07, 2025