iON Future

An Online Game-Based Learning Environment

Inspiring Youth in Science, Technology, Engineering, and Math

Change the Equation, in partnership with E-Line Media, is creating **iON Future**—a suite of free online learning games for middle school- to early high school-age youth. Players will explore the breadth and variety of STEM-based professions, and be able to match their interests with different career pathways in STEM.

Listed below are the 100 STEM careers currently being profiled in the games. These careers are sorted by profile type:

- Extended: Outline of career, online resources, related careers, tips on entering this field, interviews with professionals, and videos.
- Standard: Outline of career, online resources, related careers, tips on entering this field, and interviews with professionals.
- Basic: Outline of career, online resources, and related careers.

Please note the job descriptions below are not the exact ones that will be used in the games.

Enhanced Profiles (10)

Career Name	Description
Automotive Designer	Design cars or parts of cars
Ecologist	Study animals, microorganisms, and plants, including their interaction with others and the environment
Industrial Designer	Develop the concepts for manufactured products, such as cars, home appliances, and toys
Marine Biologist	Study organisms that live in the ocean and other bodies
Mechanical Engineer	Research, design, develop, build, and test mechanical devices, including tools, engines, and machines
Meteorologist	Study weather, climate, and other aspects of the atmosphere; develop reports and forecasts from their analysis of weather and climate data
Museum Conservator	Manage, preserve, treat, and document works of art, artifacts, and specimens
Solar Technician	Responsible for installing, maintaining, and repairing solar energy systems
Urban Planner	Develop plans and programs for the use of land; use planning to create communities, accommodate growth, or revitalize physical facilities in towns, cities, counties, and metropolitan areas
Video Game Designer	Create and develop video games, including the mission, theme, and rules of play. They may also write dialogue and design levels of game play.

Standard Profiles (50)

Career Name	Description
3D Animator	Create animation and visual effects for television, movies, video games, and other media; create 2- & 3-D models
Actuary	Analyze the financial costs of risk and uncertainty; use mathematics, statistics, and financial theory to assess the risk that an event will occur and help businesses and clients develop policies that minimize the cost of that risk; work is essential to the insurance industry
Aerospace Engineer	Design aircraft, spacecraft, satellites, and missiles; test prototypes to make sure that they function according to design
Agricultural Engineer	Activities from aquaculture (raising food that thrives in water) to land farming to forestry; developing biofuels to improving conservation; planning animal environments to finding better ways to process food
Archaeologist	Study the origin, development, and behavior of human beings; examine cultures, languages, archaeological remains, and physical characteristics of people throughout the world
Architect	Plan and design buildings and other structures; consult with clients, develop reports and drawings, and work with other architects and engineers; often visit construction sites to review the progress of projects
Athletic Trainer	Specialize in preventing, diagnosing, and treating muscle and bone injuries and illnesses; work with people of all ages and all skill levels, from young children to soldiers and professional athletes; work under the direction of a physician, as well as other healthcare providers
Audio Engineer	Set up, operate, and maintain the electrical equipment for radio and television broadcasts, concerts, sound recordings, and movies and in office and school buildings
Biomedical Engineer	Analyze and design solutions to problems in biology and medicine, with the goal of improving the quality and effectiveness of patient care
Cartographer	Measure, analyze, and interpret geographic information to create maps and charts for political, cultural, educational, and other purposes
Biometrics Technician	Use sophisticated computer programs to gather, analyze, and track data about specific biological functions or characteristics in order to gain a better understanding of complex biological activities
Chemical Engineer	Apply the principles of chemistry, biology, and physics to solve problems involving the production or use of chemicals, fuel, drugs, food, and many other products
Chemist	study the structures, compositions, reactions, and other properties of substances; use their knowledge to develop new and improved products, processes, and materials
Computer Graphic Designer	Create visual concepts, by hand or using computer software, to communicate ideas that inspire, inform, or captivate consumers

Career Name	Description
Computer Software Developer	Apply computer science, engineering, and math to design, develop, and test software
Computer-Aided Design (CAD) Technician	Use software to convert the designs of engineers and architects into technical drawings and plans
Dental Hygienist	Clean teeth, examine patients for oral diseases such as gingivitis, and provide other preventative dental care. They also educate patients on ways to improve and maintain good oral health. They may work with kids in schools.
Diagnostic Medical Sonographer	Use special imaging equipment that directs sound waves into a patient's body to assess and diagnose various medical conditions
Doctor	Diagnose and treat injuries and illnesses in patients; examine patients, take medical histories, prescribe medications, and order, perform, and interpret diagnostic tests; operate on patients to treat injuries, diseases, and deformities
Educational Technologist	Design online courses and interactive courseware, curate online collaborative student groups, facilitate multidirectional learning processes
Electrical Engineer	Design, develop, test, and supervise the manufacturing of electrical equipment such as electric motors, radar, navigation systems, communications systems, or power generation equipment;
Electrician	Install and maintain electrical systems in homes, businesses, and factories
Emergency Management Specialist	Develop disaster response plans, train other people in an organization in disaster and emergency preparedness, and coordinate with various emergency personnel (such as those at state, local, and municipal levels) to make sure emergency contingencies are covered
Environmental Engineer	Use the principles of engineering, soil science, biology, and chemistry to develop solutions to environmental problems; involved in efforts to improve recycling, waste disposal, public health, and control of water and air pollution
Environmental Scientist	Use their knowledge of the natural sciences to protect the environment; identify problems and find solutions that minimize hazards to the health of the environment and the population
Epidemiologist	Investigate the causes of disease and other public health problems to prevent them from spreading or from happening again; report their findings to public policy officials and to the general public
Food Technologist	Ensures agricultural productivity and food safety
Forensic Accountant	Forensic accountants are financial detectives who audit, investigate and determine the accuracy of financial reporting documents, often in connection with legal action. They are charged with finding questionable financial data, chiefly for the purpose of investigating a crime.

Career Name	Description
Forensic Pathologist	Specially trained physicians who examine the bodies of people who died suddenly, unexpectedly, or violently. The forensic pathologist is responsible for determining the cause (the ultimate and immediate reasons for the cessation of life) and manner of death (homicide, suicide, accidental, natural, or unknown). They are also called medical examiners.
Genetic Counselor	Analyze genetic data to help individuals and families make decisions about genetic technologies as it applies to science and personal beliefs
High School STEM Teacher	Prepare students for life after graduation; teach academic lessons and various skills that students will need to attend college and to enter the job market
Landscape Architect	Landscape architects plan and design land areas for parks, recreational facilities, highways, airports, and other properties. Projects may include subdivisions and commercial, industrial, and residential sites.
Mathematician	Use high-level mathematics and technology to develop new mathematical principles, understand relationships between existing principles, and solve real-world problems
Medical Roboticist	Design, build, and operate intelligent medical devices to provide more precise care in doctors' offices and hospitals
Microbiologist	Study the growth, development, and other characteristics of microscopic organisms such as bacteria, algae, and fungi
Nanosystems Engineer	Design, develop, and characterize materials on the nano-scale (materials are only a few nanometers in size); study the properties of materials on this scale and use that information to engineer new technologies to benefit society
Nutritionist	Experts in food and nutrition; advise people on what to eat in order to lead a healthy lifestyle or achieve a specific health-related goal
Pharmacist	Dispense prescription medications to patients and offer advice on their safe use; work in pharmacies, hospitals, and clinics
Park Naturalist	Provide educational programs to park visitors based on his or her extensive knowledge of the park. Understand all of the flora and fauna found within the park.
Physical Therapist	Sometimes referred to as PTs, help people who have injuries or illnesses improve their movement and manage their pain; treatment and rehabilitation of patients with chronic conditions or injuries
Physician Assistant	Practice medicine under the direction and supervision of physicians and surgeons; trained to examine patients, diagnose injuries and illnesses, and provide treatment
Physicist	Study the fundamental nature of the universe, ranging from the vastness of space to the smallest of subatomic particles;
Pilot	Fly and navigate airplanes or helicopters; fly for airlines that transport people and cargo on a fixed schedule; commercial pilots fly aircraft for other reasons, such as charter flights, rescue operations, firefighting, aerial photography, and crop dusting

Career Name	Description
Psychologist	Study mental processes and human behavior by observing, interpreting, and recording how people and other animals relate to one another and the environment.
Science Illustrator	Creates scientifically accurate and detailed illustrations for use in textbooks and other educational materials, museums, journals, advertising, courts, and more. The trend is toward greater use in multimedia and interactive designs.
Robotics Technician	Testing and troubleshooting problems with robots
Science Reporter	Reports scientific findings to the public; writes for newspapers, magazines, and other media
Structural Engineer	Design and supervise large construction projects, specifically structures such as airports, tunnels, dams, and bridges
Veterinarian	Care for the health of animals; diagnose, treat, or research medical conditions and diseases of pets, livestock, and animals in zoos, racetracks, and laboratories
Zoologist	Study animals in their natural habitats and in captivity; may specialize in areas such as animal disease research or conservation of species

Basic Profiles (40)

Career Name	Description
Astrobiologist	Study of the origin, evolution, distribution, and future of extraterrestrial life
Astronaut	Participate in all aspects of assembly and operation of the International Space Station, including extravehicular activities, robotics operations, experiment operations, and on-board maintenance
Astronomer	Study the fundamental nature of the universe
Automotive Service Technician	Inspect, maintain, and repair cars and light trucks
Biometrics Technician	Use sophisticated computer programs to gather, analyze, and track data about specific biological functions or characteristics in order to gain a better understanding of complex biological activities
Botanist	Study plants' relationships to the environment and other living organisms
Chemical Technician	Use special instruments and techniques to help chemists in researching, developing, and producing chemical products and processes
Climate Scientist	Evaluate data to determine how shifts in the climate will affect natural resources, animals, and civilizations
Computer Hardware Engineer	Research, design, develop, and test computer equipment such as chips, circuit boards, or routers
Computer Systems Analyst	Study an organization's computer systems and make recommendations about how to operate the business more effectively from a technical perspective
Construction and Building Inspector	Ensure that new construction, changes, or repairs comply with local and national building codes and ordinances, zoning regulations, and contract specifications
Economist	Study the production and distribution of resources, goods, and services
Exercise Physiologist	Study the principles of mechanics and anatomy in relation to human movement, and how the stress of exercise affects the body. Can manage a wellness center, design training programs, fitness test athletes and conduct scientific research.
Financial Analyst	Provide analyses and guidance to businesses and individuals in making investment decisions
Food Scientist	Analyze nutritional content, discovers new food sources, and researches ways to make processed foods safe and healthy
Forester	Manage the health of forested lands, including regrowth of forests and tree harvests
General Contractor	Manage every component of a construction job

Career Name	Description
Geologist	Study the physical aspects of the Earth, such as its composition, structure, and processes, to learn about its past, present, and future; specifically study the materials, processes, and history of the Earth; investigate how rocks were formed and what has happened to them since their formation
Horticulturist	Conducts research to learn more about the genetics and properties of plants and applies ideas to produce higher crop yields.
HVACR Technician	Heating, air conditioning, and refrigeration mechanics and installers—often referred to as *HVACR technicians*—work on heating, ventilation, cooling, and refrigeration systems that control the air quality in many types of buildings.
Hydrologist	Studies properties of water, the water cycle, and how water affects the environment
Information Security Analyst	Ensure a firm's information stays safe from cyber attacks
Lab Research Technician	Assists scientists and other researchers in the laboratory
Librarian	Library and information science specialists apply the practices, perspectives, and tools of management, information technology, education, and other areas to libraries
Lighting Designer	Work with the director, choreographer, set designer, costume designer, and sound designer of a video or stage production to create the lighting, atmosphere, and time of day
Market Research Analyst	Study market conditions in local, regional, or national areas to examine potential sales of a product or service. They help companies understand what products people want, who will buy them, and at what price.
Materials Engineer	Test materials used to create a range of products. Also develop new ways to use materials.
Naval Architect	Design, build, and maintain ships from aircraft carriers to submarines, from sailboats to tankers; work on the basic design, including the form and stability of hulls
Oceanographer	Studies the ocean; includes marine organisms and ecosystem dynamics; ocean currents, waves, and geophysical fluid dynamics
Orthodontist	Dental specialist who works to prevent or correct misaligned teeth and jaws
Paleontologist	Study prehistoric life, fossils, evolution, and the relationship between the different life forms and their environment
Paramedic	Care for the sick or injured in emergency medical settings by responding to emergency calls, performing medical services, and transporting patients to medical facilities

Career Name	Description
Nuclear Engineer	Research and develop the processes, instruments, and systems used to get benefits from nuclear energy and radiation
Radiologic Technician	Uses and maintains high-tech, medical imaging equipment to take X-rays of patients in a hospital or clinic
Safety Engineer	Develops procedures and designs systems to keep people safe in a working environment
Sociologist	Study society and social behavior by examining the groups, cultures, organizations, social institutions, and processes that people develop
Special Effects Technician	Produces on-set special effects for film, broadcast, or theatrical production; work can involve mechanical engineering, hydraulics, robotics or pneumatics
Statistician	Use mathematical techniques to analyze and interpret data and draw conclusions.
Surveyor	Measures and draws what Earth's surface looks like. Some measure land, air space, and water areas. They describe where a certain area of land is; what it looks like; and how much is there.
Veterinary Technologist	Performs medical tests in a veterinarian's office to help diagnose and treat animals