

STAAR CONNECTION™ Developmental Series™

Science
2
teacher

(created for streamlined TEKS)



KAMICO®
Instructional Media, Inc.

STAAR CONNECTION™

Science
2
teacher

Developmental Series™

III/i/MMXXIII

Version 2.1

(revised for streamlined TEKS)



KAMICO®

Instructional Media, Inc.

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KAMICO® Instructional Media, Inc.
STAAR CONNECTION™
Introduction

KAMICO® Instructional Media's program is validated by scientifically based research. **STAAR CONNECTION™ Diagnostic Series™** and **Developmental Series™** can be used in tandem to ensure mastery of Texas reporting categories and TEKS. The *Diagnostic Series™* consists of a bank of assessments. Each assessment covers a mixture of reporting categories and TEKS. This research-based format provides continual reinforcement for and ensures retention of mastered concepts. To take full advantage of this series, administer an assessment to students. After they have completed the assessment, use it as an instructional tool. Go over each item with the class, discussing all correct and incorrect answers. Then, use the assessment as a diagnostic tool to determine a standard for which students need remediation. Find that standard in the *Developmental Series™*.

Each book in the *STAAR CONNECTION Developmental Series™* consists of isolated activities and assessments to allow for the development of specific TEKS. For every TEKS, there is at least one individual or group activity. The activities provide a fun, challenging, yet nonthreatening, way to develop mastery of the TEKS. In addition to these activities, each *Developmental Series™* book has assessments on isolated standards to be used to identify mastery or the need for further skill development or reinforcement. Continue to alternate between the *STAAR CONNECTION™ Diagnostic Series™* and the *Developmental Series™*.

KAMICO's **DATA CONNECTION®** software prints student answer sheets on plain paper using a standard laser printer, scans answer sheets using a TWAIN-compliant scanner, scores assessments, and disaggregates student academic data, showing which goals and objectives are mastered and which goals and objectives are in need of reinforcement. The software is preprogrammed to work with all KAMICO® assessments. It is easily customized to work with other instructional materials and assessments as well as teacher-, school-, district-, or state-created assessments. **DATA CONNECTION®** analyzes academic data from individual students, classes, grade levels, and demographic groups. Reports are presented in tabular and graphic form. Item analysis is provided to help determine the most effective method of instruction.

KAMICO® Instructional Media, Inc., supports efforts to ensure adequate yearly progress and eliminate surprises in high-stakes test results.

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**Texas Essential Knowledge and Skills
STAAR Grade 2 Science**

Scientific Investigation and Reasoning Skills

(2.1) **Scientific investigation and reasoning:** The student conducts classroom and outdoor investigations following home and school safety procedures. The student is expected to

- (A) identify, describe, and demonstrate safe practices as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately.
 - Shades of Safe Science 11
 - An Ounce of Prevention 19
 - Assessment 31

- (B) identify and learn how to use, conserve, and dispose of natural resources and materials such as conserving water and reuse or recycling of paper, plastic, and metal.
 - Responsible for Resources 33
 - Assessment 38

(2.2) **Scientific investigation and reasoning:** The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations. The student is expected to

- (A) ask questions about organisms, objects, and events during observations and investigations.
 - What, Why, How? 40
 - Assessment 44

- (B) plan and conduct descriptive investigations.
 - Classifying Leaves 47
 - Assessment 50

- (C) collect data from observations using scientific tools.
 - Information, Please 53
 - Assessment 55

- (D) record and organize data using pictures, numbers, and words.
 - Leaves 59
 - Assessment 63

(E)	communicate observations and justify explanations using student-generated data from simple descriptive investigations.	Let's Explain the Investigation	68
		Assessment	72
(F)	compare results of investigations with what students and scientists know about the world.	Show Me!	75
		Assessment	80
(2.3)	Scientific investigation and reasoning: The student knows that information and critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to		
(A)	identify and explain a problem and propose a task and solution for the problem.	What Is the Problem?	82
		Assessment	88
(B)	make predictions based on observable patterns.	Plenty of Patterns	92
		Assessment	97
(C)	identify what a scientist is and explore what different scientists do.	Smart Scientists	102
		Assessment	115
(2.4)	Scientific investigation and reasoning: The student uses age-appropriate tools and models to investigate the natural world. The student is expected to		
(A)	collect, record, and compare information using tools, including computers, hand lenses, rulers, plastic beakers, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums.	Information Collectors	117
		Assessment	140
(B)	measure and compare organisms and objects.	Measure Away	143
		Assessment	149

Reporting Category 1: Matter and Energy

- (2.5) **Matter and energy:** The student knows that matter has physical properties and those properties determine how it is described, classified, changed, and used. The student is expected to
- (A) classify matter by physical properties, including relative temperature, texture, flexibility, and whether material is a solid or liquid.

Classified Information	153
Assessment	166

 - (B) compare changes in materials caused by heating and cooling.

Heating and Cooling Changes	169
Assessment	176

 - (C) demonstrate that things can be done to materials such as cutting, folding, sanding, and melting to change their physical properties.

What's Different?	178
Assessment	186

 - (D) combine materials that when put together can do things that they cannot do by themselves such as building a tower or a bridge and justify the selection of those materials based on their physical properties.

We Can Do It Together	189
Assessment	203

Reporting Category 2: Force, Motion, and Energy

- (2.6) **Force, motion, and energy:** The student knows that forces cause change and energy exists in many forms. The student is expected to
- (A) investigate the effects on objects by increasing or decreasing amounts of light, heat, and sound energy such as how the color of an object appears different in dimmer light or how heat melts butter.

How Does It Change?	207
Assessment	214

 - (B) observe and identify how magnets are used in everyday life.

Everyday Attraction	217
Assessment	220

(C) trace and compare patterns of movement of object such as sliding, rolling, and spinning over time.	
	Slide, Roll, and Spin! 223
	Assessment 235

**Reporting Category 3:
Earth and Space**

(2.7) Earth and space: The student knows that the natural world includes earth materials. The student is expected to	
(A) observe, describe, and compare rocks by size, texture, and color.	
	Rock and Roll 238
	Assessment 242
(B) identify and compare the properties of natural sources of fresh water and salt water.	
	Fresh or Salty? 245
	Assessment 254
(C) distinguish between natural and manmade resources.	
	Using Earth's Resources 256
	Assessment 257
(2.8) Earth and space: The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to	
(A) measure, record, and graph weather information, including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data.	
	Patterns in Weather 259
	Assessment 267
(B) identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation.	
	Planning for the Weather and Season 271
	Assessment 278
(C) observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.	
	Patterns in the Sky 280
	Assessment 289

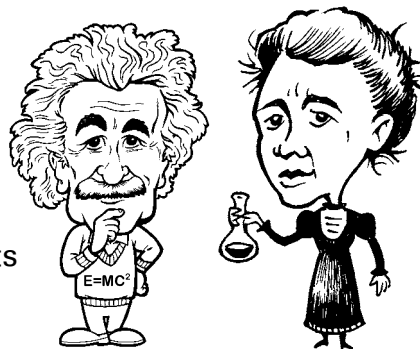
Reporting Category 4: Organisms and Environments

(2.9) Organisms and environments: The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to	
(A) identify the basic needs of plants and animals.	
What Do They Need?	291
Assessment	296
(B) identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things.	
Factors in the Environment	299
Assessment	303
(C) compare the ways living organisms depend on each other and on their environments such as through food chains.	
We Depend on One Another	305
Assessment	311
(2.10) Organisms and environments: The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to	
(A) observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs.	
Meeting Basic Needs	314
Assessment	326
(B) observe, record, and compare how the physical characteristics of plants help them meet their basic needs such as stems carry water throughout the plant.	
Helpful Plant Parts	330
Assessment	337
(C) investigate and record some of the unique stages that insects such as grasshoppers and butterflies undergo during their life cycle.	
Mighty Morphing Insects	341
Assessment	351
Answer Key	355
KAMICO® Product Information	362

TEKS 2.3C

Identify what a scientist is and explore what different scientists do.

ACTIVITY Smart Scientists



Materials

Smart Scientists scientist cards for each group of students

Smart Scientists task cards for each group of students

Background

Many students have a stereotypical view of scientists working in laboratories and wearing white lab coats. They do not realize that scientists are identified by what they do. The Natural Academy of Sciences defines science as "the use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process." A scientist is a person who uses the scientific method to study things to find out how they work or how they can be explained. Scientists may develop theories or define laws of nature that help them explain and predict phenomena. Our base of scientific knowledge increases through the work conducted by scientists.

This activity teaches students what scientists do in their different fields.

Procedure

Ask students to identify and describe scientists in movies or television shows they may have seen.

Discuss and write on the board the following types of scientists. Provide examples of their work.

chemist - scientist who studies substances and the way they interact with one another

botanist - scientist who studies plants along with their growth, structure, evolution, and uses

paleontologist - scientist who studies fossils

astronomer - scientist who studies the universe and the objects within it, for example: planets, stars, galaxies, asteroids, black holes, and other celestial phenomena

microbiologist - scientist who studies microscopic organisms including bacteria, algae, and fungi

geologist - scientist who studies Earth, its history, nature, materials and processes

engineer - scientist who designs engines and machines, roads, and bridges

computer scientist - scientist who solves problems using technology

zoologist - scientist who studies animals

marine biologist - scientist who studies marine organisms, their behaviors, and their interactions with the environment

physicist - scientist who studies the way things work

meteorologist - scientist who understands and predicts weather and climate

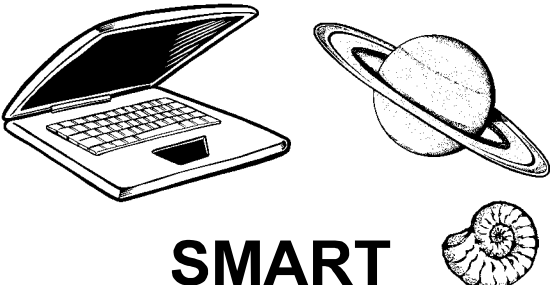
Divide the class into groups of three or four students. Distribute the *Smart Scientists* scientist cards and the *Smart Scientists* task cards. Instruct students to keep the two card sets separate from each other. Explain that each scientist card identifies a different kind of scientist (e.g., chemist, biologist, paleontologist). Each task card describes a task that a particular scientist performs.

Players spread out the scientist cards with the number-side up. They place the task cards in a pile in the middle of the group. Players work together to match each task card with the proper scientist card.

Answer Key

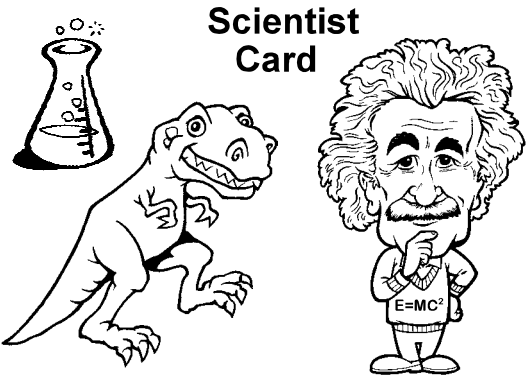
Scientist Card	Task Card
1 chemist	Q, Y
2 botanist	L, C
3 paleontologist	U, K
4 astronomer	T, Z
5 microbiologist	P, G
6 geologist	A, W
7 engineer	H, B
8 computer scientist	S, J
9 zoologist	N, D
10 marine biologist	F, E
11 physicist	R, M
12 meteorologist	X, V

Smart Scientists Scientist Cards

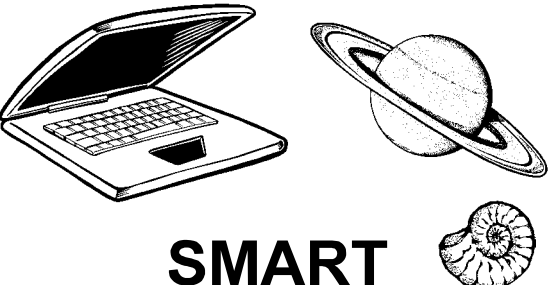


SMART SCIENTISTS

Scientist Card

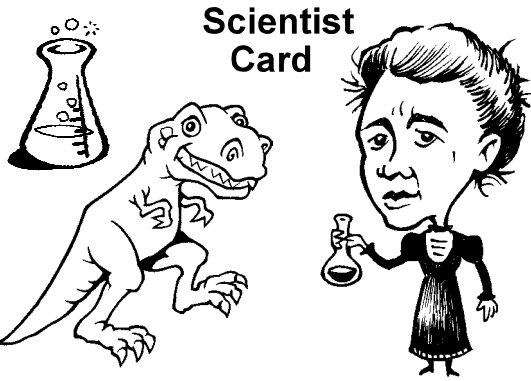


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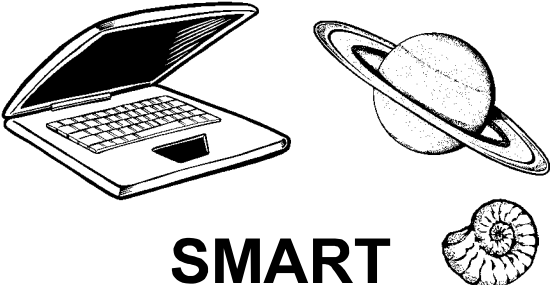


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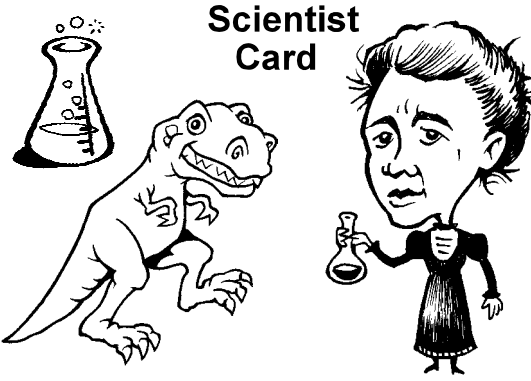


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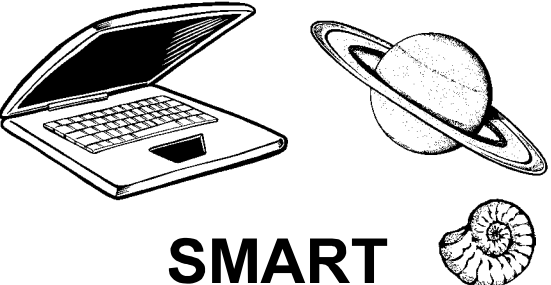


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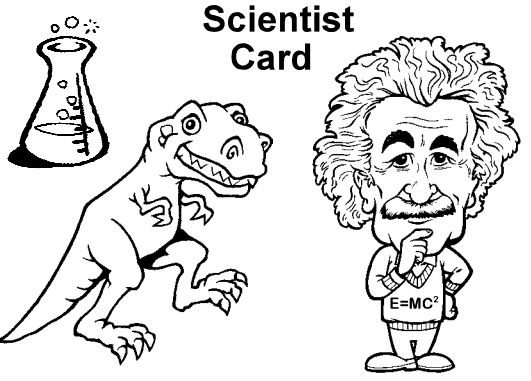


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SMART SCIENTISTS

Scientist Card



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chemist



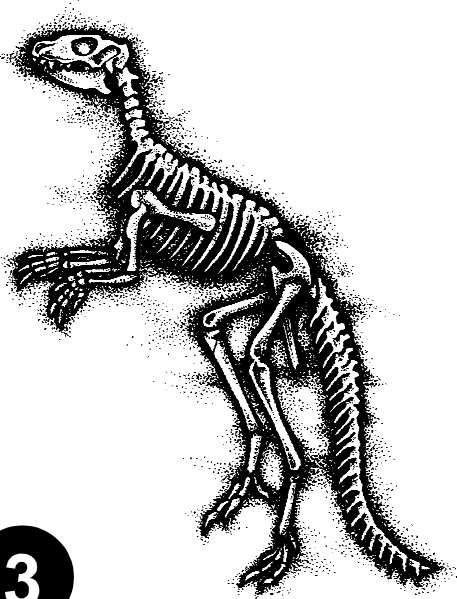
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botanist



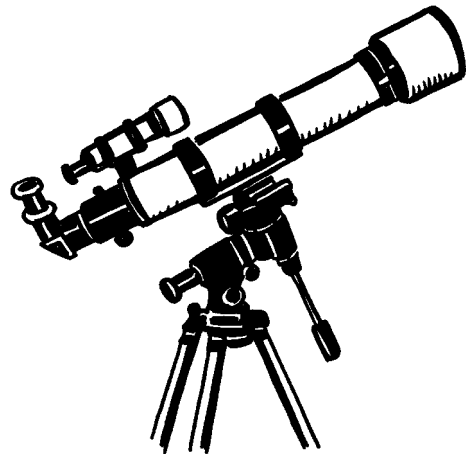
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paleontologist

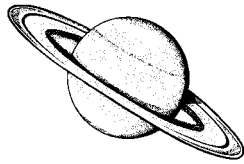
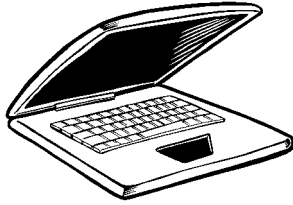


3

astronomer

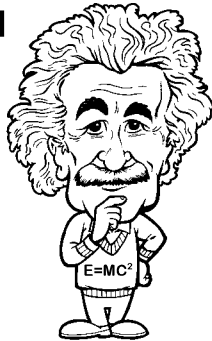
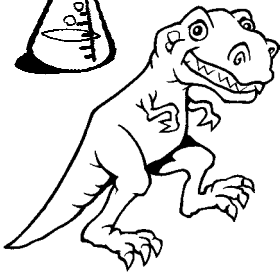
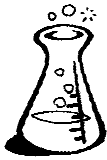


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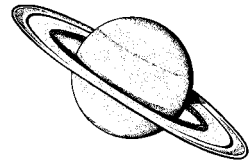
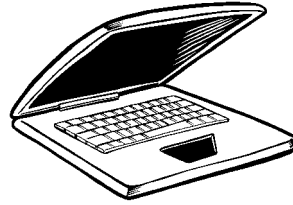


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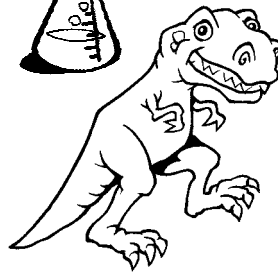


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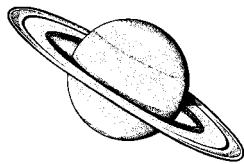
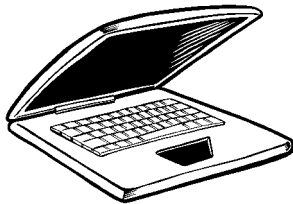


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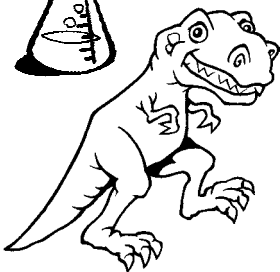


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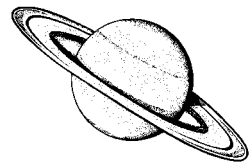
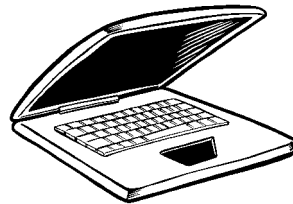


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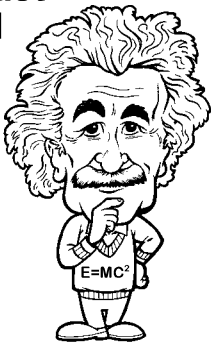
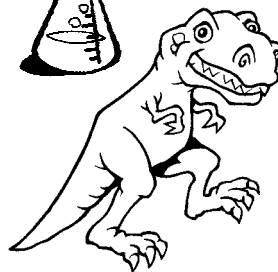
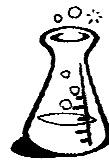


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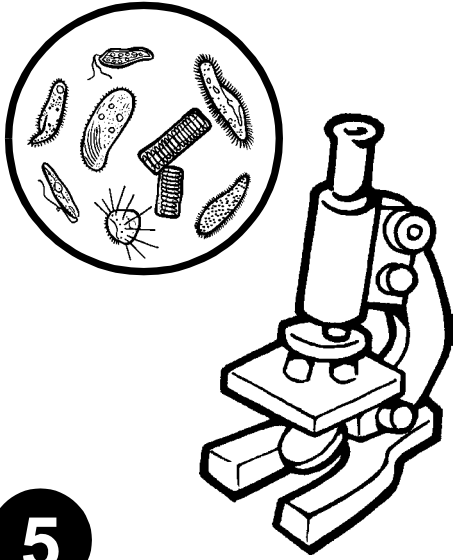
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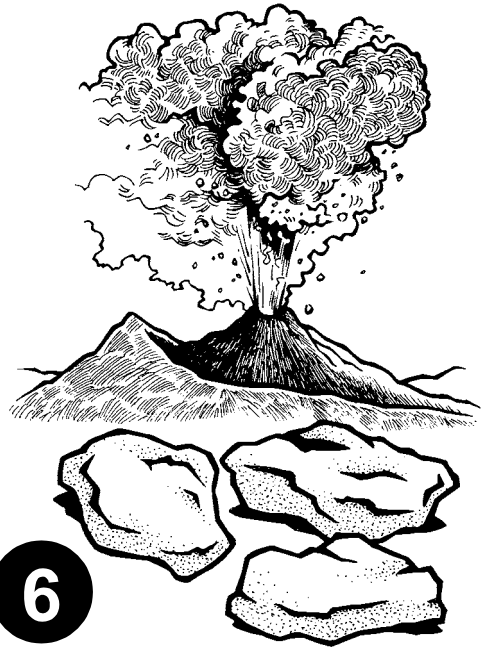
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microbiologist



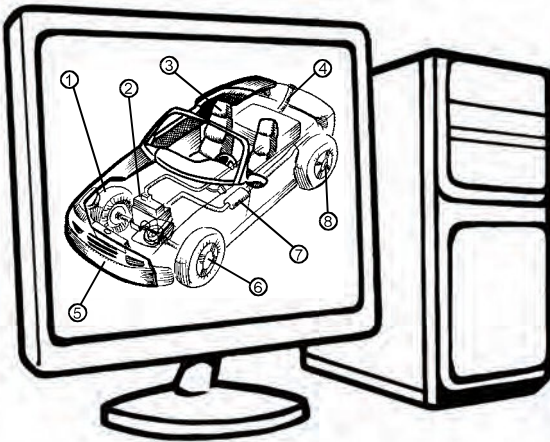
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geologist



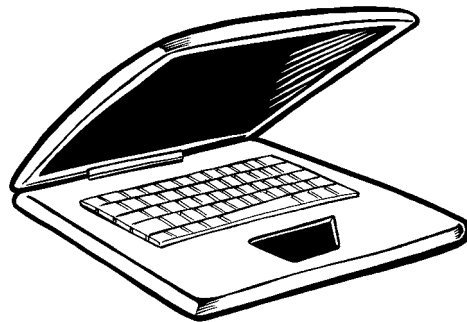
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engineer

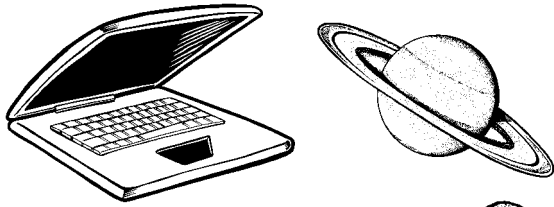


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computer
scientist



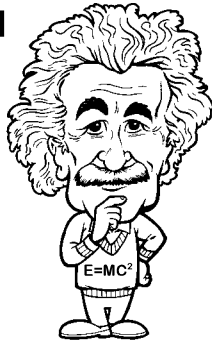
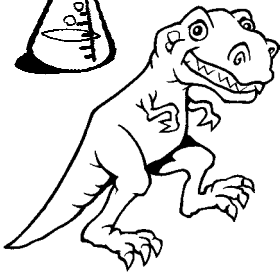
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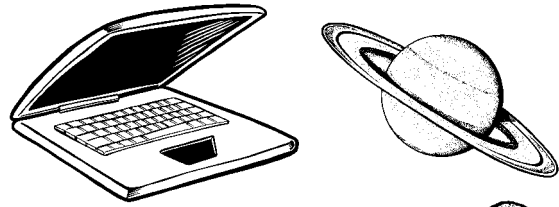
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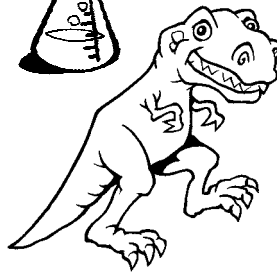
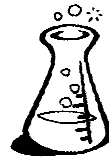
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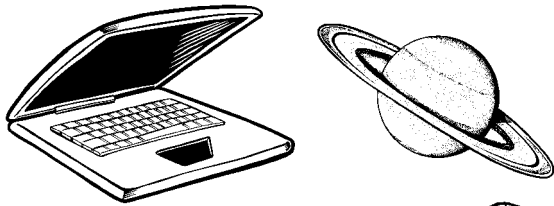
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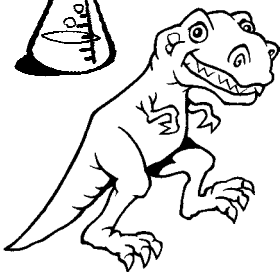
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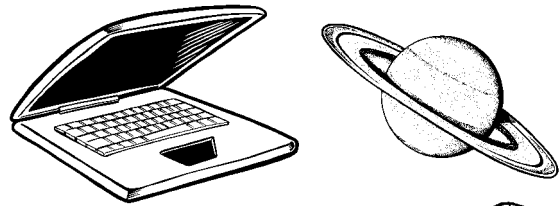
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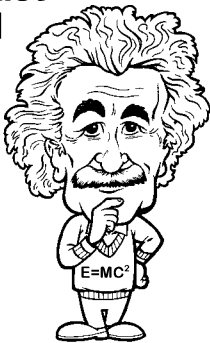
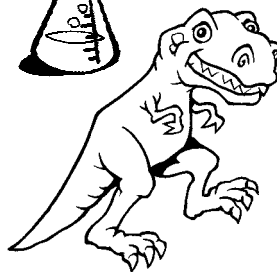
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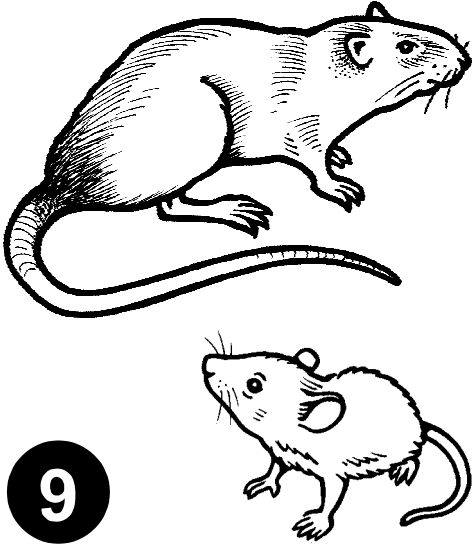


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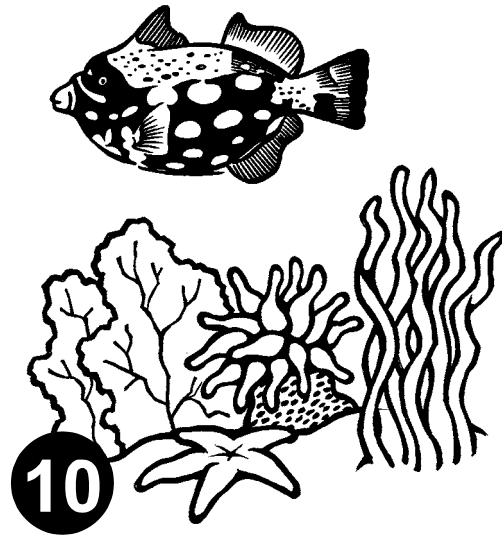
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zoologist



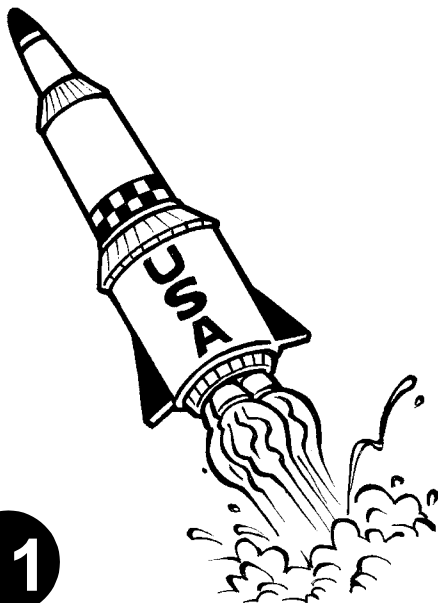
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marine
biologist



10

physicist



11

meteorologist

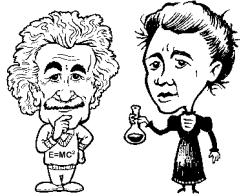


12

Smart Scientists Task Cards

I want to know what happens if I add lemon juice to baking soda.

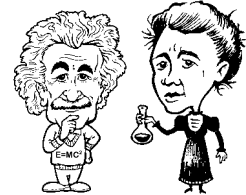
When I mix these two things together, I observe that the mixture fizzes and gives off a gas.



Q

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I am doing an experiment. I use some powder in a container. I put the powder in a fire. The fire turns bluish green. Now I know that the powder contains copper.



Y

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I want to know if a type of plant grows well in the shade.

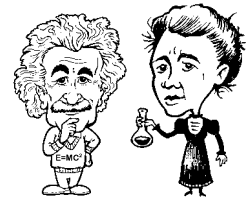
I put the plant in a shaded place. I observe that the plant begins to lose its leaves.



L

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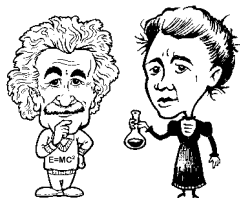
I am doing an experiment to see if a type of weed grows better in clear water or muddy water. The experiment shows me that the weed grows better in muddy water.



C

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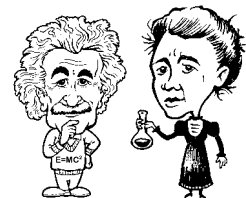
I am studying the fossil of an old dinosaur bone. I run tests on the bone to see how old it is.



U

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I find some fossils of dinosaur footprints. I compare these footprints to fossil footprints of other dinosaurs.

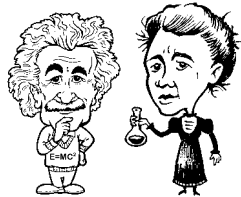


K

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I observe the night sky through a telescope. One night I discover a new star.

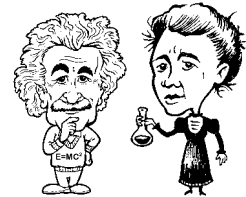
T



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I want to know if the planets in our solar system really move around the sun. I observe and measure the planets' movements every night.

Z



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I want to know if bacteria can be found in pond water. I look at a drop of pond water under a microscope.

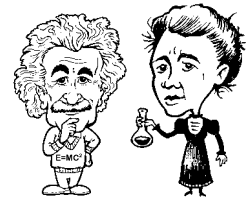
P



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I am studying how algae grows in lake water. I study lake water before and after rainstorms.

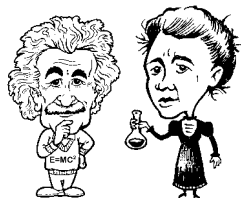
G



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I want to know if a mountain was once a volcano. I take rocks from the mountain and study them.

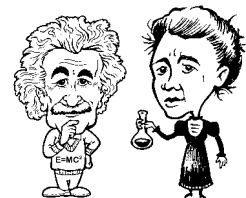
A



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I study rocks and the way they change over time.

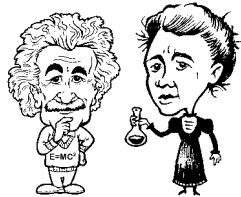
W



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I am helping draw plans for a new bridge.

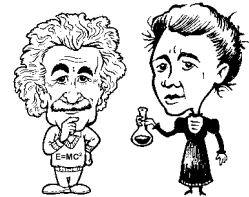
H



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I am helping design a new engine for an airplane.

B



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I am writing a computer program. The program will solve math problems.

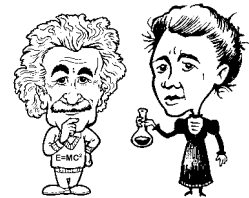
S



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I am writing a program for computers. The program will test how fast a computer can run.

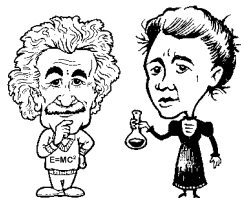
J



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I want to know why a horse runs so fast. I study how the horse's legs and muscles work.

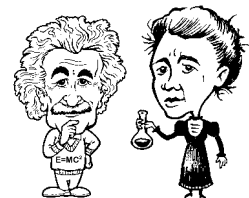
N



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I am studying a gorilla to see if it likes fruit more than it likes vegetables.

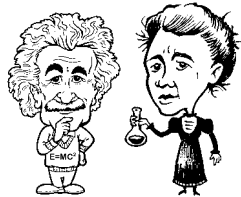
D



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I am studying how pollution affects living things in the ocean.

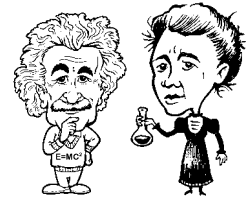
F



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I am identifying the kinds of saltwater plants that live in a very cold ocean.

E



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I study motion, forces, and energy. I am studying how seesaws work.

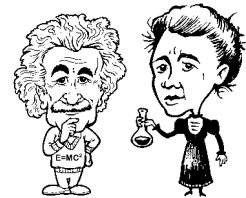
R



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I am studying how roller coasters work!

M



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I want to know what the weather is like very high in the sky. I send up measuring tools with a weather balloon.

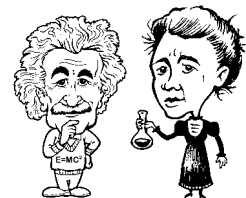
X



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I see that a storm is forming over the ocean. I study the storm to see if I think it will turn into a hurricane.

V



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Identify what a scientist is and explore what different scientists do.

- 1 Jeffrey's mother is a botanist. What is a task Jeffrey's mother might do in a lab?
- A Study how trees grow.
 - B Study how the wood from trees can be made into furniture.
 - C Study how hard a car must hit a tree in order for a driver to be hurt.
 - D Study how people behave in a lab.
-
- 2 Dr. Kringle studies the planet Mars through a telescope. He is going to describe the planet. Dr. Kringle is most likely a —
- A computer scientist.
 - B meteorologist.
 - C astronomer.
 - D geologist.

3 Iris wants to be a chemist when she grows up. What is something that Iris would do as a chemist?

A She would do an experiment to see if dogs are smarter than cats.

B She would invent a robot that could wash dishes.

C She would see what kind of germs live in mud.

D She would find out why nails get rusty when they get wet.

4 Leesa loves dinosaurs. She finds fossils of dinosaur footprints. What kind of scientist would help Leesa know the type of dinosaur that left the footprints?

A an engineer

B a paleontologist

C a physicist

D a chemist