



Science

5-6

Written by
Marilyn Marks

Editors: Carla Hamaguchi and Collene Dobelmann

Illustrator: Dimension

Designer/Production: Moonhee Pak/Rosa Gandara

Cover Designer: Barbara Peterson

Art Director: Tom Cochrane

Project Director: Carolea Williams

Table of Contents

Introduction	4
------------------------	---

LIFE SCIENCE

Human Body

Human Skeleton	5
Types of Joints	6
The Brain	7
The Nervous System	8
The Heart	9
Your Blood	10
What Are Carbohydrates and Fats?	11
What Are Proteins?	12
Digestion	13
Vitamins	14
Minerals We Eat	15
A Balanced Diet	16
Your Lungs	17
The Excretory System	18
Muscles at Work	19
The Skin	20
Human Body Crossword Puzzle	21
Contagious Diseases	22
Noncontagious Diseases	23

Plants

Seed Plants	24
Flowering Plants	25
Pollination and Fertilization	26
Conifers	27
Photosynthesis	28
How Plants Package Seeds	29
Plant Word Scramble	30
Ferns and Mosses	31
Algae	32

Ecology

Ecosystems	33
Nature's Decomposers	34
Habitat vs. Niche	35
Food Webs	36

Harmful Symbiotic Relationships	37
Helpful Symbiotic Relationships	38
Ecosystems Recycle Chemicals	39

EARTH SCIENCE

Natural Resources

Renewable Resources	40
Nonrenewable Resources	41
Coal	42
Oil and Natural Gas	43
Geothermal Energy	44
Wind Energy	45
Solar and Nuclear Energy	46
Air Pollution	47
Clean Drinking Water	48
Pollution Puzzle	49

Geology

Plate Tectonics	50
Earthquakes	51
Where Do Earthquakes Happen?	52
Types of Volcanoes	53
Moving Magma in the Mantle	54
Faulting and Folding	55
Water Shapes the Land	56
Glaciers	57
Soil Formation	58
Types of Soil	59

Weather

The Earth's Atmosphere	60
What Causes the Weather?	61
Convection Currents in the Air	62
Land and Sea Breezes	63
Air Pressure	64
Humidity	65
Precipitation	66
Reading the Clouds	67
Cold Fronts	68

Warm Fronts	69
Thunderstorms	70
Hurricanes	71
Tornadoes	72
Reading Weather Maps	73
Weather Words Rebus Puzzle	74

Outer Space

The Solar System and the Universe.	75
The Sun	76
The Moon and the Tides	77
Phases of the Moon	78
Galaxies	79
Zodiac Constellations	80
Comets	81
Meteors and Asteroids	82
Nebulae	83
Black Holes	84
Life Cycle of Stars	85
Outer Space Crossword Puzzle	86

PHYSICAL SCIENCE

Chemistry

What Are Elements?	87
Structure of Atoms	88
Molecules	89
Periodic Table	90
Chemical Formulas	91
Changes of State	92
Density of Matter	93
Physical Properties of Matter	94
Metals vs. Nonmetals	95
Dissolving in Water	96
Solutions and Suspensions	97
Mixtures vs. Compounds	98
Chemical Properties of Matter	99
Chemical Changes	100
Physical or Chemical Change?	101
Chemistry Word Scramble	102

Light and Heat

Heat Energy	103
Sources of Heat	104
Heat Conduction	105
Heat Conductors and Insulators	106
Expansion and Contraction	107
Convection and Radiation	108
Electromagnetic Spectrum	109
Infrared and Microwaves	110
Sunlight and Blue Sky	111
Ultraviolet Light	112
Fiber Optics	113
Lasers	114

Answer Key	115
----------------------	-----

Human Skeleton

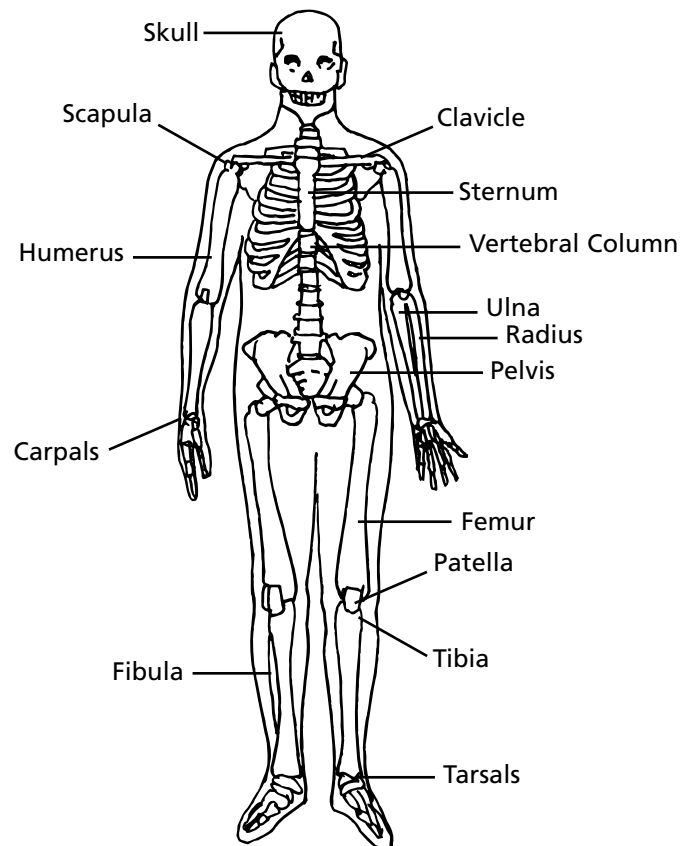
HUMAN BODY

The human skeleton contains over 200 bones. The skeleton gives the body shape and support, and it protects internal organs, such as the brain, heart, and lungs. The bones of your skull have grown together to form a protective covering around your brain. Your rib cage protects your heart and lungs. Strong connective cords, called **ligaments**, hold the bones of the skeleton together.

Match each item to its description.

- | | |
|----------------------|------------------------|
| 1 _____ thigh bone | 6 _____ ligaments |
| 2 _____ compact bone | 7 _____ collarbone |
| 3 _____ calcium | 8 _____ shoulder blade |
| 4 _____ backbone | 9 _____ kneecap |
| 5 _____ cartilage | 10 _____ spongy bone |

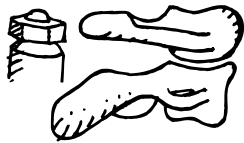
- A. patella
- B. protects the spinal cord
- C. cushions the ends of bones
- D. hard bone tissue found on outer part of bones
- E. connect bones to other bones
- F. flexible bone tissue containing collagen
- G. scapula
- H. clavicle
- I. mineral needed for strong, healthy bones
- J. femur



Types of Joints

HUMAN BODY

The place where two bones meet is called a **joint**. There are three main types of joints found in the body: immovable, partially moveable, and freely moveable. **Immovable joints** have fused together and no longer move. **Partially moveable joints** allow slight movements in all directions. **Freely moveable joints** include pivot joints, hinge joints, ball and socket, and gliding joints.



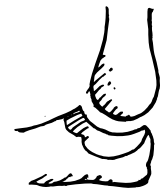
Pivot
Rotates side to side



Ball and Socket
Moves all around



Gliding
Moves up and down
and side to side



Hinge Joint
Bends and straightens

Use the words in the box to complete the sentences. You can use a word more than once.

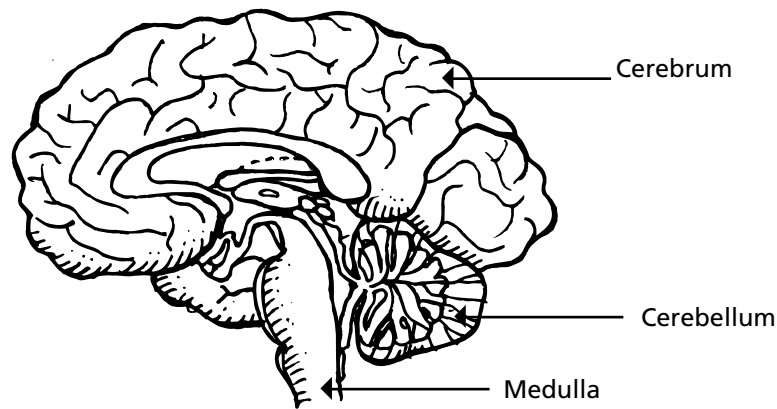
neck hip wrist knee elbow shoulder skull backbone ankle

- 1 You have immovable joints in the _____.
- 2 Ball and socket joints are found in your _____ and _____.
- 3 Pivot joints are located in your _____ and _____.
- 4 Partially moveable joints are located all along the _____.
- 5 Hinge joints are found in your _____ and _____.
- 6 Gliding joints are found in your _____, _____, and _____.

The Brain

HUMAN BODY

The brain is the center of the nervous system. It has three main sections: the cerebrum, the cerebellum, and the brainstem. The **cerebrum** is the largest section and contains centers for the five senses, pain, memory, reasoning, and speech. The **cerebellum** controls muscular coordination and balance. The small **brainstem** is the most important because it contains the medulla. The **medulla** automatically controls vital life functions, such as your heartbeat, breathing, digestion, and blood pressure.



Write **cerebrum**, **cerebellum**, or **medulla** to identify which part of the brain controls the activity.

- 1 breathing _____
- 2 vision _____
- 3 balance _____
- 4 heartbeat _____
- 5 memory _____
- 6 sneezing _____
- 7 walking up stairs _____
- 8 pain _____
- 9 swimming _____
- 10 speech _____