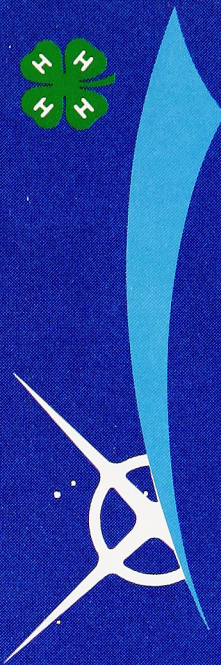


# MISSION MANUAL



**BLUE  
SKY  
BELOW  
MY  
FEET™**

**ADVENTURES IN SPACE TECHNOLOGY  
FORCES, FIBERS, FOOD**

SECOND EDITION

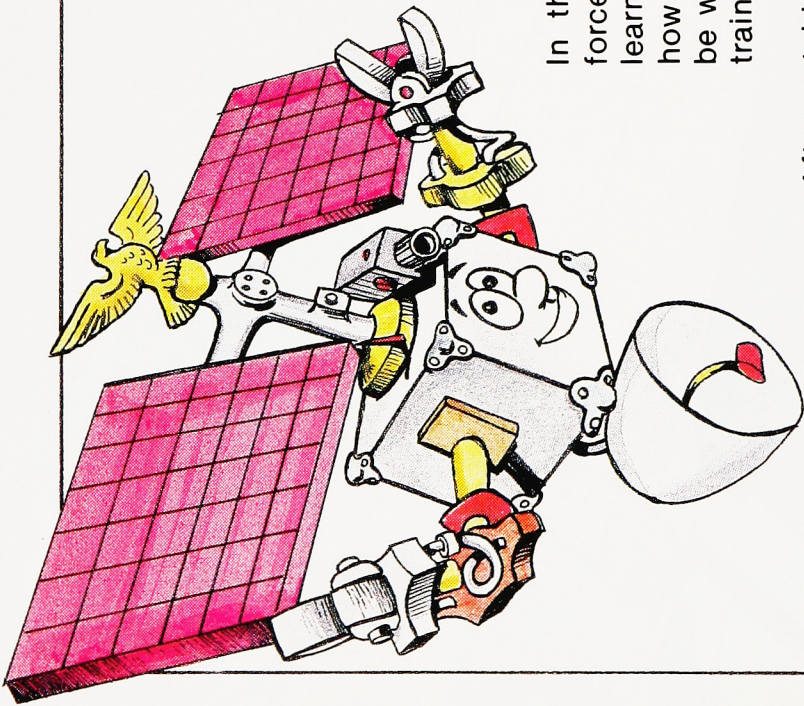
# HELLO, I'M IMPULSE!!

an animated satellite. Welcome to *Blue Sky Below My Feet—Adventures in Space Technology*. Project *Blue Sky* is a TV series designed to help you explore space technology and how it relates to life on earth.

In three half-hour television programs you'll learn about forces, fibers and foods from NASA's Space Shuttle. You'll learn about: the fabrics from which space suits are made, how astronauts eat and sleep in space, and what it's like to be weightless. You'll also see NASA Shuttle astronauts in training and actual scenes of them in outer space.

After watching the TV shows you'll want to complete the exercises and activities in this Mission Manual. Your leader or teacher will provide additional "fun" activities for you. At the back of the Mission Manual is your personal Blue Sky record form. Read it now. Use it to help you keep track of the things you learn and skills you gain from the Blue Sky 4-H project.

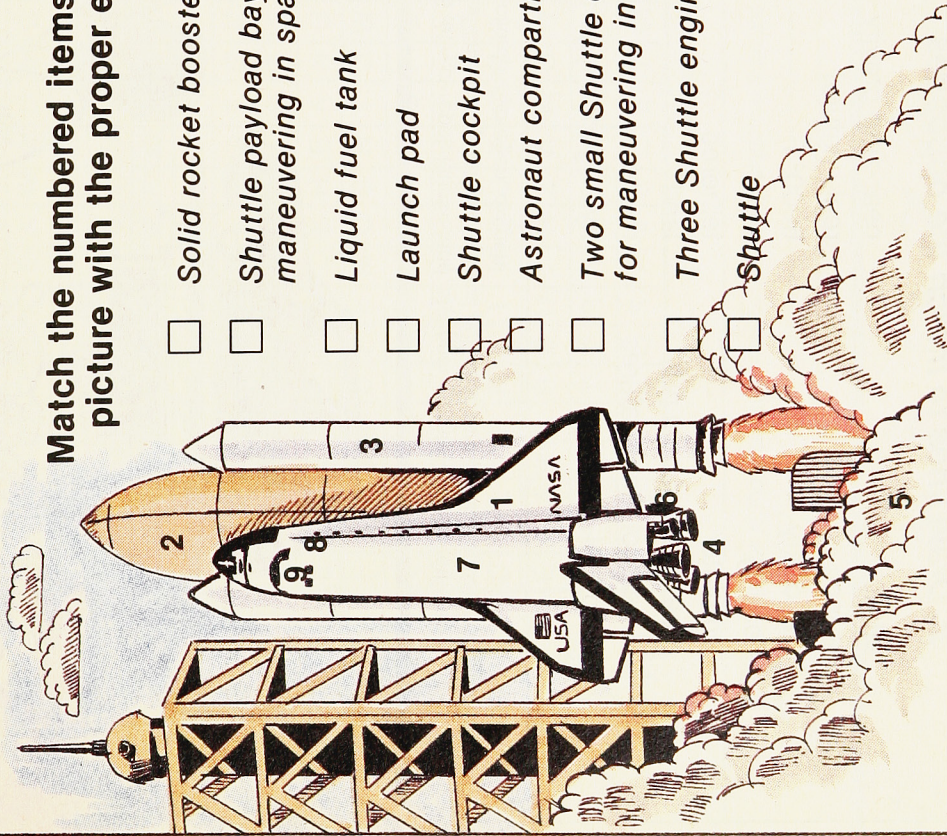
This project will take you out of this world! I'm excited already, and you should be, too. Climb aboard and get set for lift off. Countdown...5-4-3-2-1...have fun!!



## What You Will Learn:

- The parts of a Space Shuttle and how it operates
- What gravity is and how it differs between Earth and space
- How astronauts work, eat and sleep in space
- What it's like to be weightless

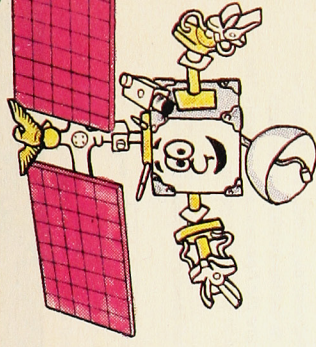
Match the numbered items in the picture with the proper entry.



- Solid rocket boosters
- Shuttle payload bay for maneuvering in space
- Liquid fuel tank
- Launch pad
- Shuttle cockpit
- Astronaut compartments
- Two small Shuttle engines for maneuvering in space
- Three Shuttle engines
- Shuttle

ANSWERS: 1. Shuttle 2. Liquid fuel tank 3. Solid rocket boosters 4. Three Shuttle engines 5. Launch pad 6. Two small Shuttle engines for maneuvering in space 7. Shuttle payload bay for space experiments 8. Shuttle astronaut compartments 9. Shuttle cockpit

## IMPULSE INPUT



Sketch a map of the United States. Mark the location of Cape Canaveral or the Kennedy Space Center (Florida) where the Shuttle is usually launched, and of Edwards Air Force Base (California) where it sometimes lands. Where else might the Shuttle land? Mark this location, also. Then draw your own picture of the Space Shuttle on the launch pad. You might want to use your map to give a speech or illustrated talk.

## SCREEN SCAN

### "Count Down" 1

- The Shuttle orbiter has 3 main engines
- There are 2 rocket booster engines
- The Shuttle's attached to 1 liquid fuel tank
- The Shuttle sits on the launch pad
- Lift-off!

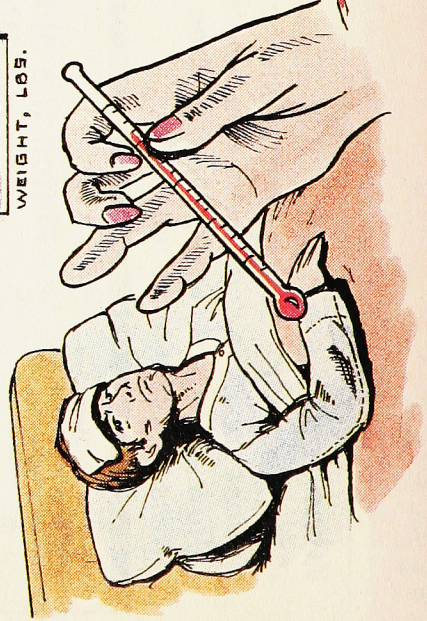
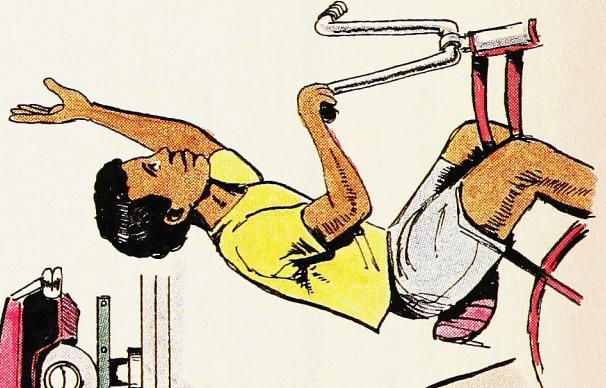
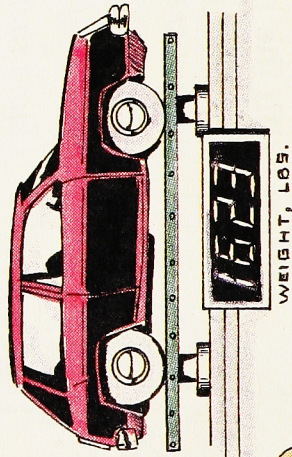
### "Count Down" 2

- The Shuttle has 3 main parts: rockets, orbiter, fuel tank
- The Shuttle pilot uses 2 small engines for orbit maneuvering
- The Shuttle has 1 huge payload area for experiments and equipment
- The Shuttle has a control area like an airplane's cockpit
- Lift-off!

## 2. Draw lines to match the opposites

- |                          |                   |
|--------------------------|-------------------|
| attract                  | near-zero gravity |
| launch                   | real / natural    |
| stationary               | 6000° F           |
| floating                 | repel             |
| simulate                 | tethered          |
| great gravitational pull | land              |
| supercool temperatures   | rotate            |
| solid fuel               | hydrogen, oxygen  |

ANSWERS: attract-repel; launch-land; stationary-rotate; floating-tethered; simulate-real; natural-great gravitational pull; near-zero gravity; supercool temperatures-6000° F; solid fuel-hydrogen, oxygen



# SCREEN SCAN

## "Take Your Bearings"

### TEMPERATURES

- Cold: 32° F - water freezes
- Hot: 212° F - water boils
- Cold: -80° F coldest U.S. temperature (Prospect Creek, AK)
- Hot: 134° F - hottest U.S. temperature (Death Valley, CA)

### SPEED

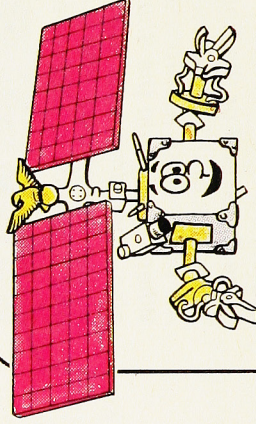
- Highway speed: 55 MPH
- Small airplane landing speed: 60 MPH
- Shuttle's "hot" landing speed: 200 MPH

### WEIGHT

- Big football player: 300 lbs.
- Shuttle weight: 150,000 lbs.
- Earth's weight: 6.5 sextillion tons

**CIRCUMFERENCE of Earth:** 24,900 miles  
**DISTANCE from Earth to Moon:** 225,000 miles

# IMPULSE INPUT



Can you imagine temperatures below -290 and over 5000° F? These temperatures are extremely cold or hot. What the hottest and coldest things you experience every day? What are the heaviest and lightest? The fastest and slowest? Write your answers in the spaces below.

- |   |   |
|---|---|
| hottest objects / estimated temperature | coldest objects / estimated temperature |
| heaviest objects / estimated weight     | lightest objects / estimated weight     |
| fastest things / estimated speed        | slowest things / estimated speed        |

3. Using this puzzle, find these terms which relate to gravity, forces and the Space Shuttle (vertical, horizontal, diagonal, backward, forward)

H	T	R	A	E	M	B	P	I	L	U	I	P	T	K	N	O
C	H	N	Z	I	O	W	R	S	M	O	O	T	I	D	E	S
L	A	N	X	N	O	D	A	E	A	W	I	U	M	C	E	X
T	U	O	S	V	N	L	E	A	S	U	O	A	E	E	R	F
W	E	I	G	H	T	L	E	S	S	L	B	N	O	C	C	L
E	W	T	L	M	A	I	C	E	E	F	O	N	M	I	A	
E	I	A	P	Z	N	P	C	G	S	A	O	R	B	I	T	N
O	H	T	G	I	W	A	A	D	L	G	S	T	G	K	E	N
C	U	O	H	U	P	M	E	R	C	T	S	P	A	N	G	
E	T	R	L	S	O	A	I	C	K	H	E	A	N	U	G	R
F	U	E	L	S	U	F	M	O	B	R	T	U	W	A	A	
O	N	T	P	A	I	N	E	R	Z	A	D	O	F	B	M	V
R	I	B	E	V	R	W	R	O	C	K	E	T	A	B	M	I
C	L	L	U	P	R	P	I	H	D	U	T	O	S	I	A	T
E	L	A	K	I	B	E	U	I	R	Z	A	M	G	R	B	Y
M	F	S	C	A	T	T	R	A	C	T	I	O	N	R	O	E
E	A	S	L	B	E	O	S	P	V	L	E	E	T	M	E	C

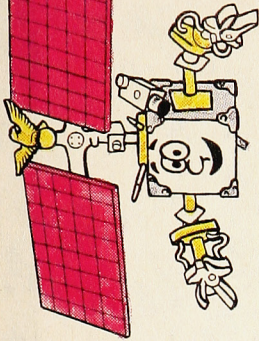
- moon
- tides
- rotation
- earth
- sun
- masses
- weightless
- gravity
- force
- booster
- attraction
- magnetic
- parachute
- pull
- ocean
- rocket
- fuel
- astronaut
- orbit
- space suit

(Answer on page 18)

The sun is the center of the solar system. Planets vary in distance from the sun.  
Which planet is closest? \_\_\_\_\_  
Which planet is farthest away? \_\_\_\_\_



## IMPULSE INPUT



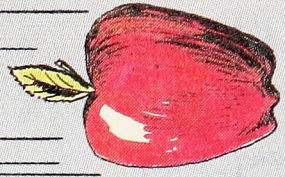
Read about tides in an encyclopedia. Look at a tide table in your local bait and tackle or sporting goods store. Learn why the tides normally change 4 times each day. Explain to your group how the Moon affects the tides.

Look at a map of the solar system and explain to your group how the sun pulls on the planets, the Earth on the Moon, the Moon on the Earth. Briefly describe what you presented to your group.

## SCREEN SCAN

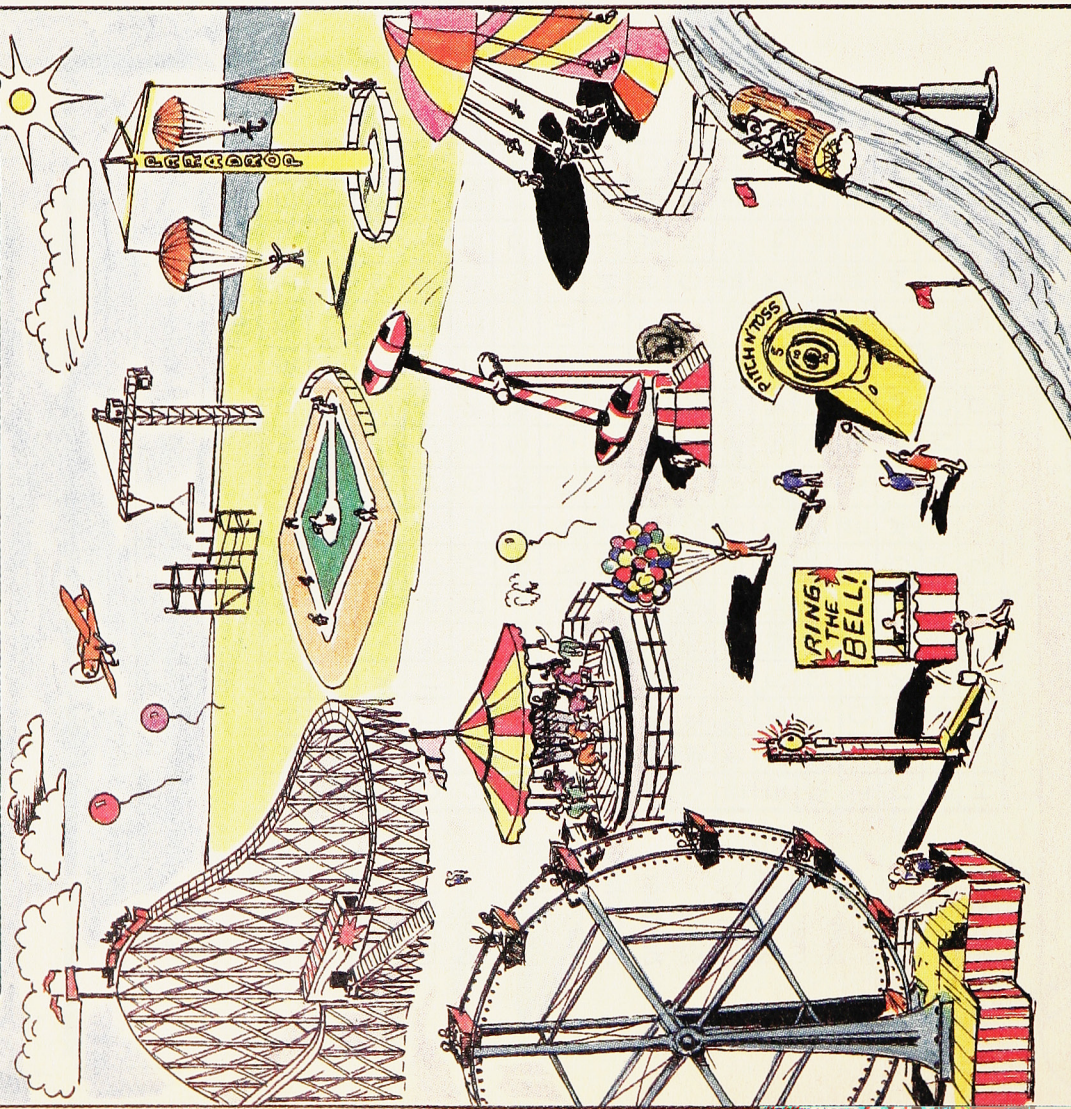
"Three Principles of Gravity  
Newton Plucked from the Air  
300 Years Ago (1687) - Can  
you still get hold of them?"

- Every particle attracts every other particle
- The amount of attraction - gravitational pull - depends on the mass of both particles
- The greater the distance between the centers of objects or masses, the less gravity's force



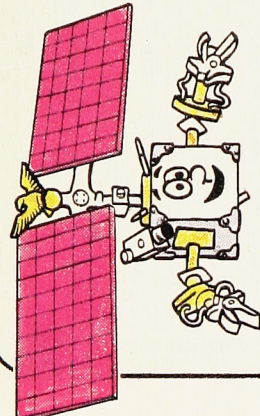


Can you find 15 effects of gravity in this picture?  
Place a number (from 1 - 15) beside each one.



- ANSWERS**
- roller-coaster
  - parachute drop
  - balloons
  - construction crane
  - logslide
  - ring-the-bell
  - merry-go-round
  - airplane overhead
  - sun in the sky
  - pitch-n'-toss
  - rotating swings
  - rotating rockets
  - ballfield baseball game

## IMPULSE INPUT



Take a field trip to an amusement park. Make notes about how it is a "gravity effects factory". Attach your notes to this page with a staple or tape.

Take a field trip anywhere else where you can see the effects of gravity. How about an airport? A stone quarry? A grain elevator? A dam? Make notes about this field trip and what you discovered about the effects of gravity. Attach these notes to your page, too.

## SCREEN SCAN

Can You Answer These Gravity Questions?

- Q. What is 1-horsepower?  
A. The power needed to lift 550 lbs 1 foot in 1 second.
- Q. How much can the largest airplane carry compared to the Shuttle?  
A. The C5A can carry 200,000 lbs., the Shuttle about 65,000 lbs.
- Q. Which are more powerful, the C5A's engines or the Shuttle's?  
A. The C5A has 160,000 lbs. of thrust, the Shuttle has + 6,000,000.



Circle 10 things in the Space Shuttle that show the effects of near-zero gravity.



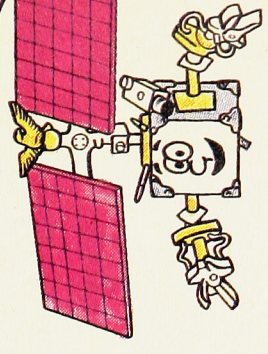
- ANSWERS**
1. astronaut flying through the air
  2. floating clipboard
  3. astronaut shaving and floating backward
  4. floating toothbrush
  5. floating toothpaste
  6. liquid container with fluid at top
  7. astronaut putting on sock in tumbling position
  8. one floating sock
  9. floating pliers on tether
  10. floating knife and fork

## SCREEN SCAN

The computer asks you to use your imagination. Prepare your school for a "weightlessness check" by answering these questions:

- How would you keep food on your cafeteria trays?
- How would you keep books on the shelves in your library?
- How would you keep library shelves on the floor?
- How would you make basketballs go through the hoops?
- How would you keep school busses on the ground?
- How would students stay in their school bus seats?
- How would you keep desks on the floor?
- What would make water go down the bathroom sinks?

## IMPULSE INPUT



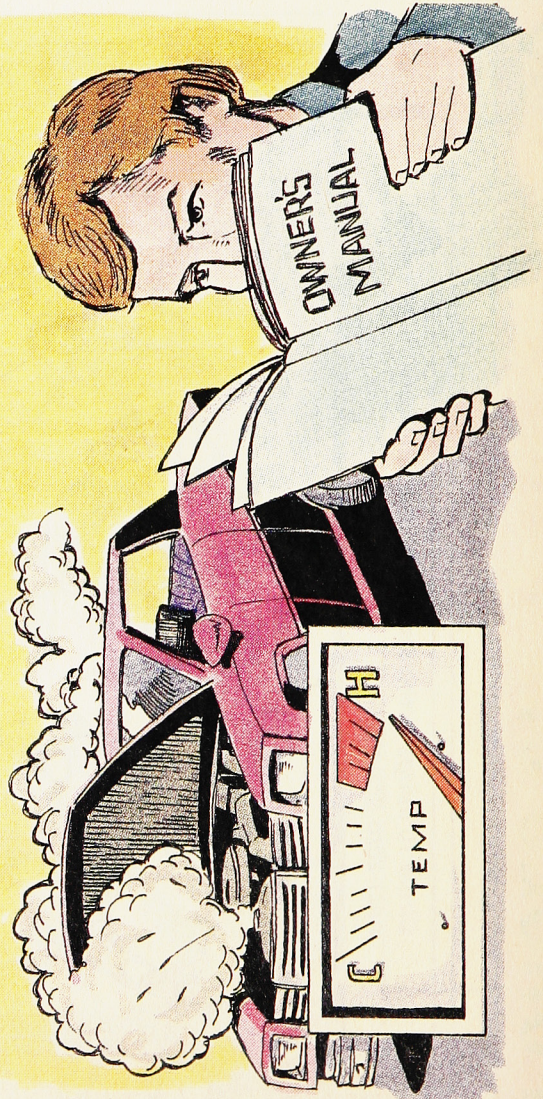
The next time you go swimming, use the water to learn what you can about the effects of near-zero gravity. Imagine what it would be like to "swim" through your house, school or grocery store if it had near-zero gravity. Sketch a picture of the way you imagine it would be. Attach it here. Or, write or tape record a story about how it would feel.



6. Draw lines to match the features on the left with the proper entry.

- |                            |                                  |
|----------------------------|----------------------------------|
| 6000 MPH                   | solid rocket boosters            |
| 6000° F                    | Earth orbit                      |
| 150 feet tall              | Space Shuttle engines            |
| 90 minutes                 | rocket boosters                  |
| 150,000 lbs.               | liquid oxygen and hydrogen       |
| 500,000 supercool gallons  | Space Shuttle                    |
| 2-minute burn              | exhaust from rocket boosters     |
| 5 + million lbs. of thrust | liquid fuel tank                 |
| 1 + million lbs. of thrust | Shuttle & rocket engines burning |

ANSWERS: 6000 MPH—exhaust from rocket boosters; 6000° F—Shuttle & rocket engines burning; 150 ft. tall—liquid fuel tank; 90 minutes—Earth orbit; 150,000 lbs.—Space Shuttle; 500,000 supercool gallons—liquid oxygen and hydrogen; 2-minute burn—solid rocket boosters; 1 + million lbs. of thrust—Space Shuttle engines; 5 + million lbs. of thrust—rocket boosters



## SCREEN SCAN

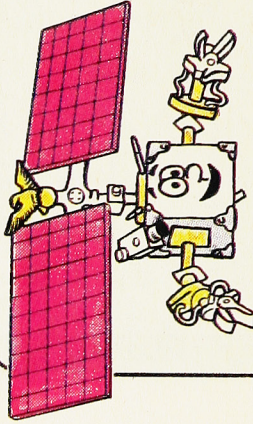
“Scaling up, down and across”

	Fahrenheit	Centigrade	(scientific) Kelvin
water boils	212°	100°	373°
water freezes	32°	0°	273°
absolute zero	-459°	-273°	0°

Q: How do we protect the Shuttle from the heat of friction (2750° F) when it re-enters Earth's atmosphere?

A. We cover 70% of the Shuttle's surface with 27,000 heat-absorbent tiles.

## IMPULSE INPUT



Look in newspapers or magazines to find some pictures of flying craft with multiple engines. Cut them out and compare your pictures with those of friends. How many engines does the largest craft have? Helicopter? \_\_\_\_\_ Airplane? \_\_\_\_\_

Blimp? \_\_\_\_\_ Why does the Shuttle have so many engines? \_\_\_\_\_



# FIBERS AND FABRICS 1.



## What You Will Learn

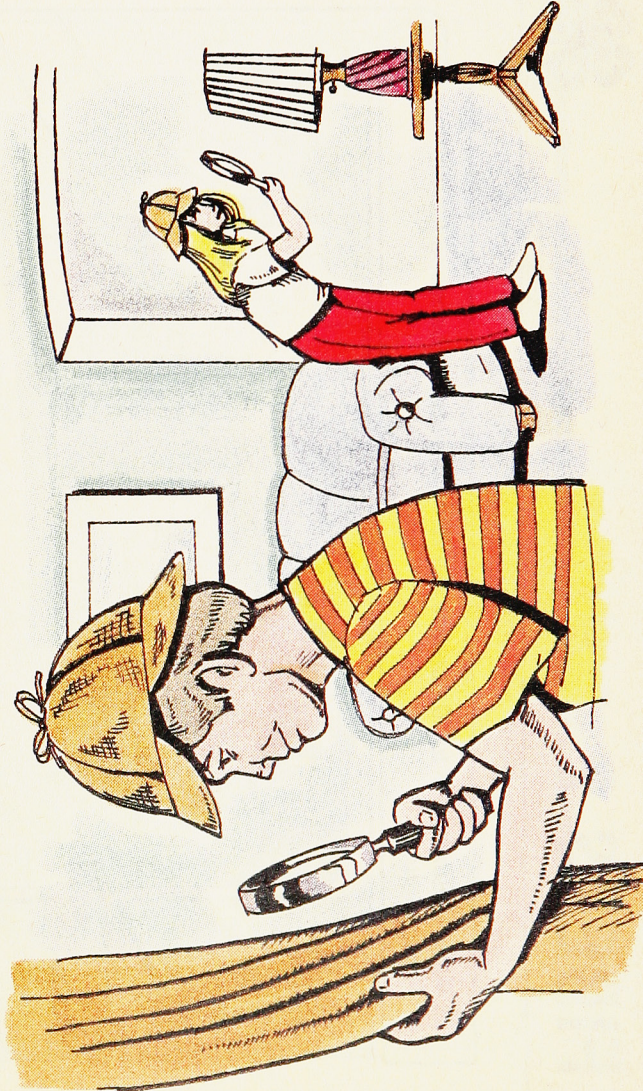
- How fibers are made into fabrics and textiles
- About fabrics from which space suits are made
- The difference between man-made and natural fibers
- Careers associated with the clothing and textile industry
- The wide uses of fibers and textiles in our everyday lives

1. From the choices given, write in the correct source of each of these natural fibers.

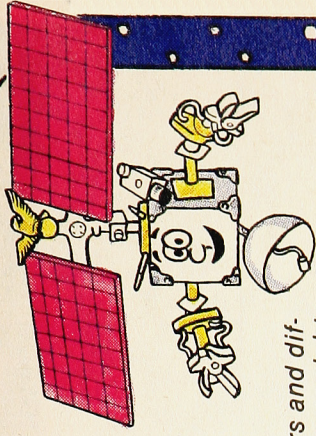
- \_\_\_\_\_ silk
- \_\_\_\_\_ rope
- \_\_\_\_\_ linen
- \_\_\_\_\_ cotton
- \_\_\_\_\_ cashmere
- \_\_\_\_\_ wool

CHOICES: vegetable plant; worms; sheep; hemp plant; goat hair; flax plant

ANSWERS: silk-worms; rope-hemp plant; linen-flax plant; cotton-vegetable plant; cashmere-goat hair; wool-sheep



# IMPULSE INPUT



Plan a field trip to look at fibers and different kinds of fabric. Places you might visit include: department store, textile mill, yarn shop, a tailor or farmer who grows cotton or raises sheep. If you're a photographer, you might take pictures and do an interesting photo story to share with friends. After the visit, write the name of someone you met there:

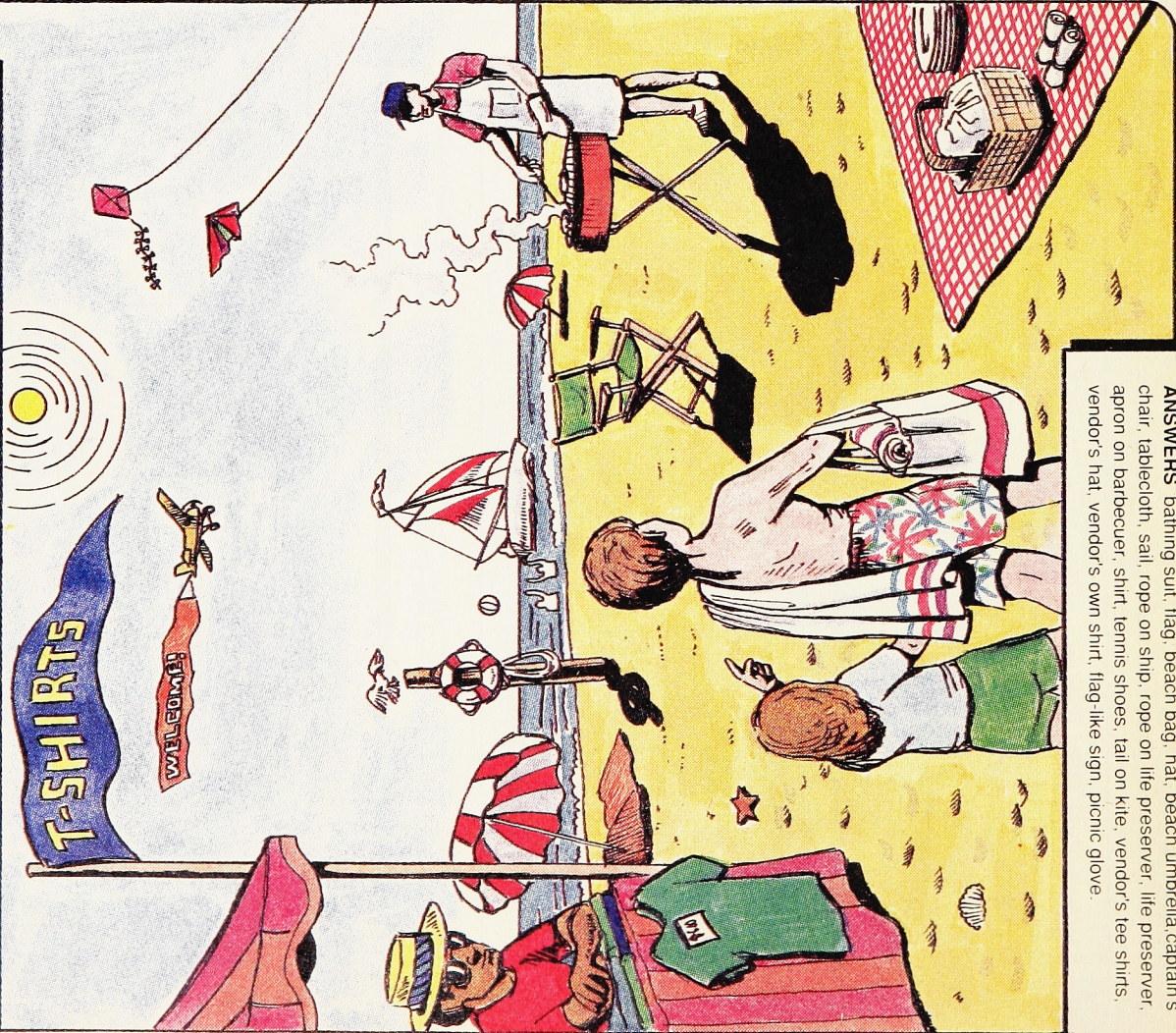
# SCREEN SCAN

## Be a Super Snooper

Where do you find fibers? In uniforms, flags, fish nets, firefighters' suits. You sleep covered by them, wash with them, and even wear them night and day. They're everywhere: tires, hoses, ropes, cables, artificial tendons, medical filters, clothes, carpeting, furniture, canvas, nets, purses and bags, sports gear and shoes. Go on a fiber hunt inside and outside your home. Write down the number of times fibers are used. Remember, unusual items can sometimes be found in the basement, attic and garage.

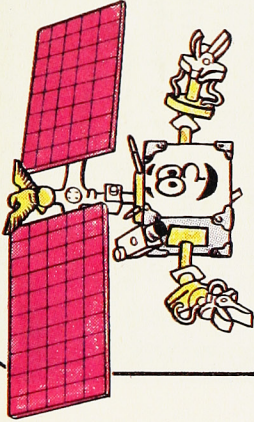


2. Write a number - 1 to 20 - beside the 20 examples of fibers and fabrics in the picture.



**ANSWERS** bathing suit, flag, beach bag, hat, beach umbrella, captain's chair, tablecloth, sail, rope on ship, rope on life preserver, life preserver, apron on barbecue, shirt, tennis shoes, tail on kite, vendor's tee shirts, vendor's hat, vendor's own shirt, flag-like sign, picnic glove.

## IMPULSE INPUT



Examine several fabrics. Look at colors and patterns. Feel the textures. List fabrics which look and feel smooth / rough

hot / cool \_\_\_\_\_ Which fabrics make light / heavy \_\_\_\_\_ sound when they move? \_\_\_\_\_ List some fabrics or cloth that make you happy: \_\_\_\_\_ List some that make you uncomfortable: \_\_\_\_\_

## SCREEN SCAN

Suppose you were a design engineer hired to design space suits. Use this checklist to show which factors you would consider most in designing the suits for wear inside (I) and outside (O) the Shuttle. Mark each item with an I, O, or both.

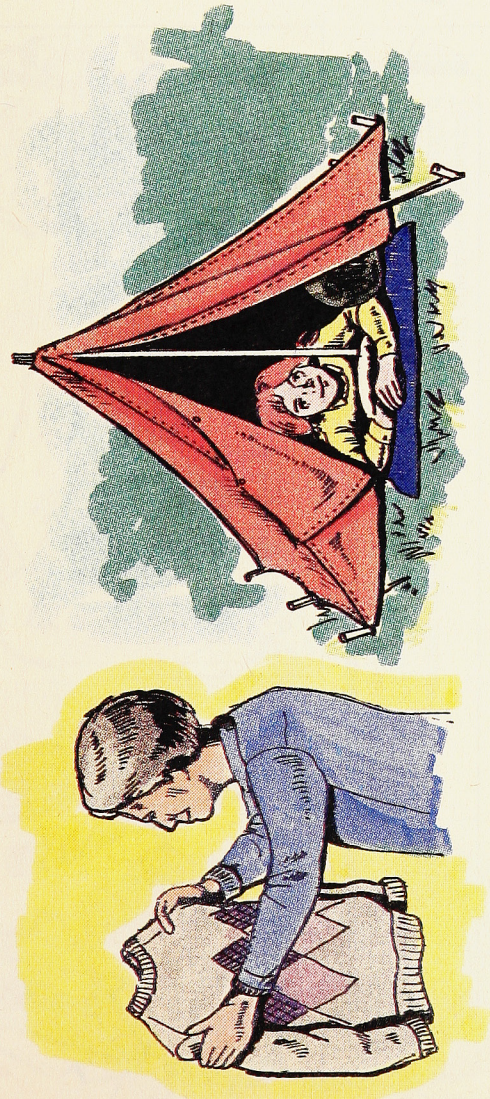
1. Heat / cold protection \_\_\_\_\_
2. Flammability \_\_\_\_\_
3. puncture-proof \_\_\_\_\_
4. durability \_\_\_\_\_
5. strength \_\_\_\_\_
6. comfort \_\_\_\_\_
7. mobility \_\_\_\_\_
8. body temperature \_\_\_\_\_
9. fit \_\_\_\_\_
10. convenience \_\_\_\_\_

**ANSWERS**

1. O; 2. I,O; 3. O; 4. I,O; 5. O; 6. I; 7. O; 8. I,O; 9. I; 10. I



# FIBERS 3.



# SCREEN SCAN

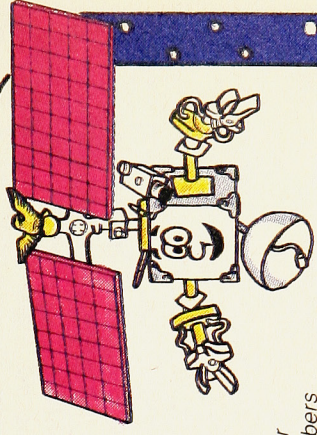
*"Do you know which machines do what?"*

- Looms      lace lengthwise yarns with crosswise ones
- Knitting machines      loop yarn loops with needles
- Bonding machines      join 2 fabrics into 1 using adhesives, binders or heat

### 3. Unscramble the following fiber words

- notoct \_\_\_\_\_
- onevw \_\_\_\_\_
- dbnel \_\_\_\_\_
- slopeerty \_\_\_\_\_
- onlyn \_\_\_\_\_
- kils \_\_\_\_\_
- nobded \_\_\_\_\_
- nipsgni \_\_\_\_\_
- egavinv \_\_\_\_\_
- oolm \_\_\_\_\_

**ANSWERS**  
 cotton, woven, blend, polyester, nylon, silk, bonded spinning, weaving, loom.



## IMPULSE INPUT

Write a brief story about a good or bad experience you've had with fibers or cloth. For instance, have you tried making something recently with fabric or cloth? A tent? A kite? A boat sail? A parachute? Or did you just try to dress yourself in something special for school, Halloween or a parade? In your story tell why the experience was good or bad and what you learned from the experience. Attach your story to this page.

# FIBERS 4.

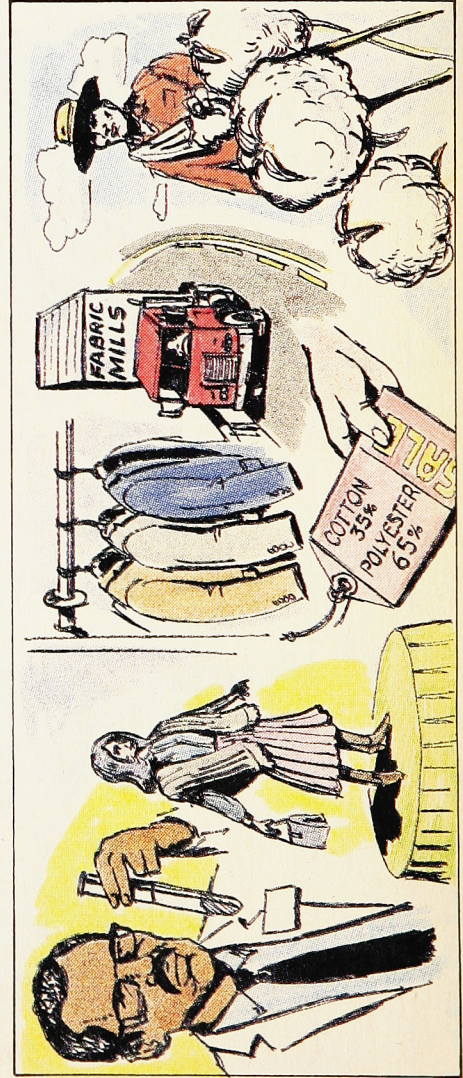


4. From the choices given, write in the job each worker does in the fiber and textile world.

- farmer \_\_\_\_\_
- chemist \_\_\_\_\_
- marketer \_\_\_\_\_
- shipper \_\_\_\_\_
- business manager \_\_\_\_\_
- computer operator \_\_\_\_\_
- fashion model \_\_\_\_\_
- retailer \_\_\_\_\_
- technician \_\_\_\_\_

**CHOICES:** sells to consumers, runs business, programs looms, raises crops and animals, transports, maintains looms, sells to stores, develops new fiber finishes, models clothing

**ANSWERS:** Farmer-raises crops and animals; Chemist-develops new fiber finishes; Marketer-sells to stores; Shipper-transport; Business manager-runs business; Computer operator-programs looms; Fashion model-models clothing; Retailer-sells to consumers; Technician-maintains looms

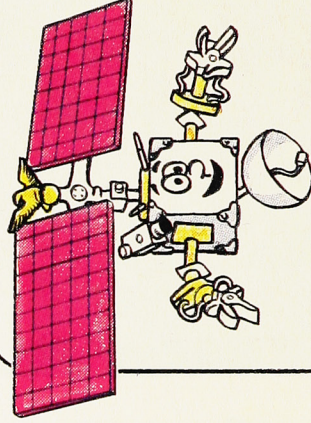


## SCREEN SCAN

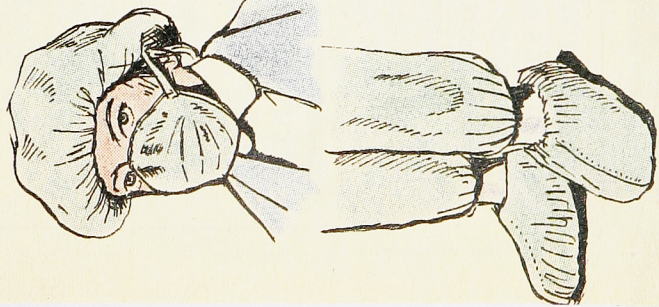
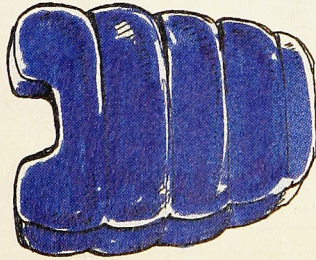
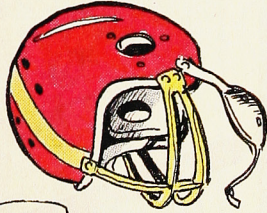
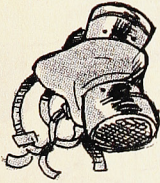
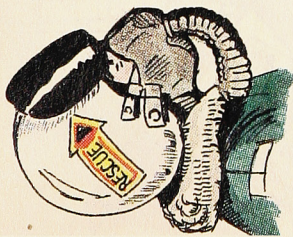
**"If I worked in the world of fibers, what kinds of tools could I use?"**

I could plow the land. I could shear sheep. I could develop new fibers in test tubes. I could drive a large truck to a mill. I could program a mill loom with a computer. I could run a set of looms. I could print brochures or posters for a store. I could wear clothing for buyers to look at. I could use a computer to manage a large clothing store. Or I could even use a cash register to ring up a sale.

## IMPULSE INPUT



On a separate sheet of paper, list some songs that mention fibers or clothing. For each one, tell what it says about clothing or fibers. Try singing the songs in your classroom or group meeting. If you play an instrument, try one of the songs on your list. Attach the list to this page.

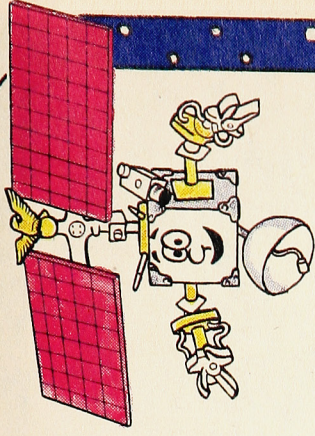


**5. Draw lines to show who wears what kinds of clothing.**

- |                  |                       |
|------------------|-----------------------|
| surgical gowns   | soldiers              |
| dust masks       | firefighters          |
| helmets          | umpires               |
| camouflage       | football players      |
| aramid suits     | industrial workers    |
| rubberized suits | hockey goalies        |
| protective vests | toxic waste disposers |
| shin pads        | nurses                |

**ANSWERS** surgical gowns—nurses; dust masks—industrial workers; helmets—football players; camouflage—soldiers; aramid suits—firefighters; rubberized suits—toxic waste disposers; protective vests—umpires; shin pads—hockey goalies

## IMPULSE INPUT



Visit a medical center, police or fire station, factory, or toxic waste company to see the different kinds of clothing workers actually wear on their jobs. Draw an example of the clothing worn by the workers you visited, or take pictures of them. Attach your drawings or pictures to this page.

## SCREEN SCAN

**“The Fabrics Book of Facts!”**

Silk filaments are continuous: 300–1,600 yards!  
Most American cotton fibers are short:

1/2 to 2 inches!

The first man-made fibers were invented less than 50 years ago!

Fiber optics are transmitting long-distance electric signals!

Lightweight fiber ropes are replacing some heavy metal cables on oil rigs!

Some fighter airplane wings are being made of tough fibers!

Americans use more man-made fibers than natural ones!

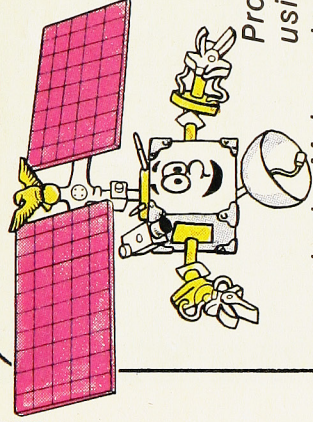
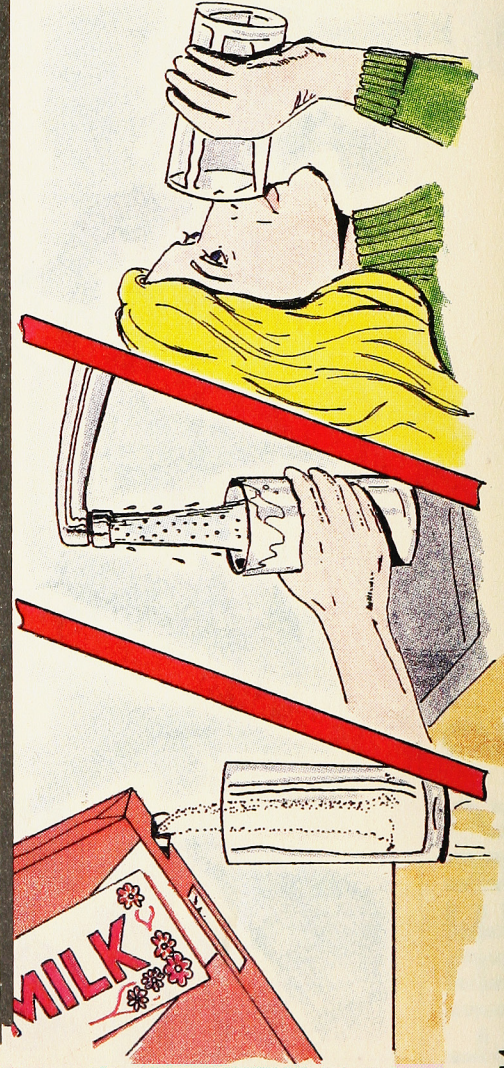
## What You Will Learn:

- Sources and functions of food nutrients
- How food is processed and packaged for space travel
- How food is prepared in space
- How good nutrition affects health and the ability to perform certain tasks
- Careers relating to the area of food and nutrition

## 1. Draw lines to match the items on the left with the corresponding answers on the right.

- |                        |                        |
|------------------------|------------------------|
| A. dehydration         | burning calories       |
| B. freeze-drying       | adding water           |
| C. thermostabilization | giving information     |
| D. irradiation         | removing water         |
| E. rehydration         | turning ice to vapor   |
| F. labeling            | cooking and sealing    |
| G. activity/exercise   | using rays to preserve |

- ANSWERS  
 A. removing water; B. turning ice to vapor; C. cooking and sealing; D. using rays to preserve;  
 E. adding water; F. gives information; G. burning calories



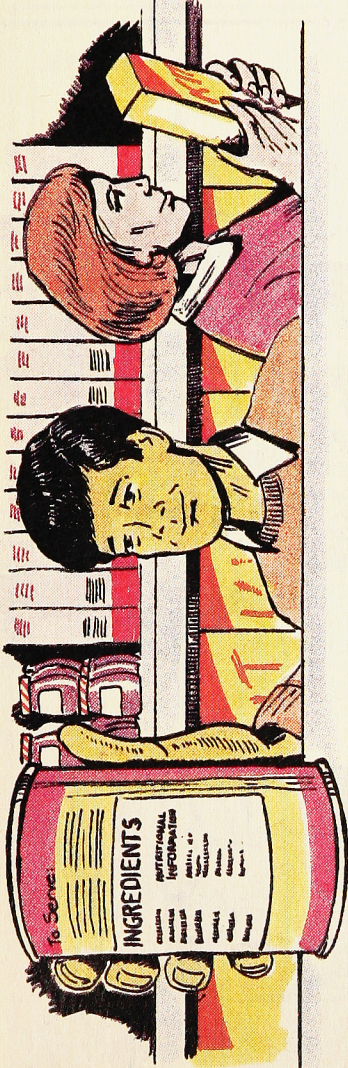
## IMPULSE INPUT

Process or prepare food by using two food processing methods. Make notes on what you did. How long did each method take? How simple was it? Which methods are the easiest for you to use? The fastest? How did the two finished food products compare? Attach your notes to this page.

## SCREEN SCAN

### “Shuttle kitchen instructions”

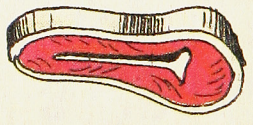
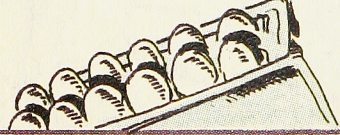
- Add water from supply to hydrate foods.
- Keep food and fluids in special containers and pouches to prevent floating into cabin area.
- Heat food as needed for preparation.
- Sorry—no refrigeration or ice available.
- Eating can be enjoyed in just about any position—squatting, floating, or sitting.
- Enjoy your meals!



2. For each nutrient, write in the major food sources.

- A. protein \_\_\_\_\_
- B. vitamin A \_\_\_\_\_
- C. vitamin C \_\_\_\_\_
- D. vitamin D \_\_\_\_\_
- E. vitamin B1 (thiamin) \_\_\_\_\_
- F. calcium \_\_\_\_\_
- G. iron \_\_\_\_\_

CHOICES: milk & cheese, vitamin-D-added milk & fish, deep yellow fruits & yellow or dark-green leafy vegetables, citrus fruits & green vegetables, meat / milk / fish / beans / nuts, pork / whole grains / enriched breads / cereals, meat / liver



ANSWERS A. meat/milk/fish/beans/nuts B. deep yellow fruits & yellow or dark-green leafy vegetables C. citrus fruits & green vegetables D. vitamin-D-added milk & fish E. pork/liver/whole grains/enriched breads/cereals F. milk & cheese G. meat/liver

## SCREEN SCAN

**"Enough, but not too much."**

To build a strong body: eat a variety of foods (they supply nutrients and energy); get enough exercise.

To lose weight: limit your calories; increase activity and exercise

To gain weight: increase your calories

## IMPULSE INPUT

Go to your local grocery store. Look at nutrition labels to find examples of foods that provide sources of the nutrients listed at the left in #2. On a separate sheet, list 3 foods that are good sources of each nutrient. Put a star by the food that you like best for each nutrient. List each nutrient and your favorite food here:

Nutrient	Food

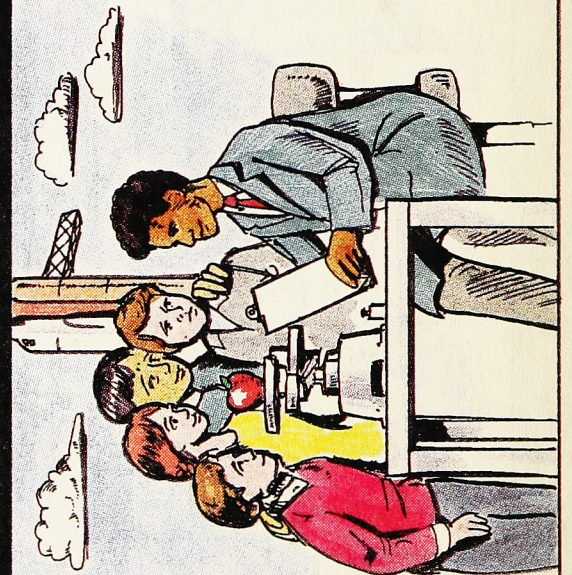
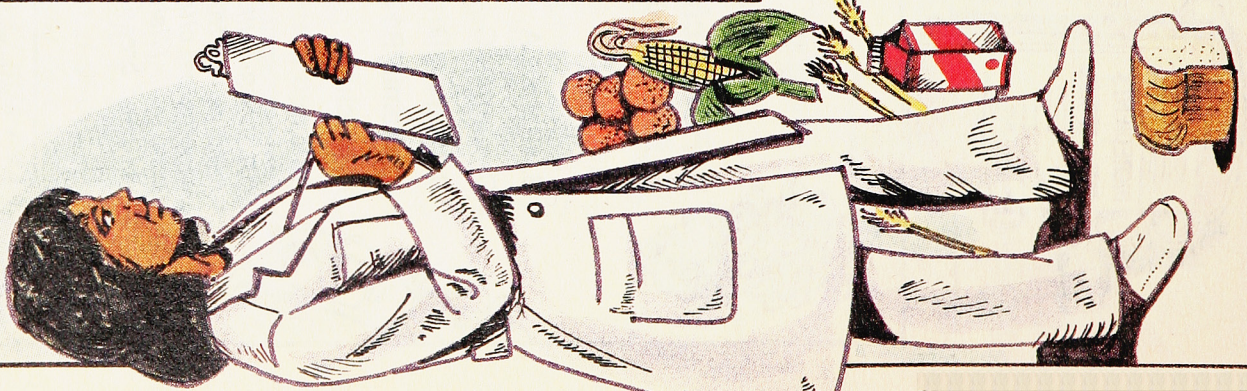


3. Imagine you're a dietician planning a Space Shuttle diet. From the choices given, write in what processed form you'd put these food items aboard the Shuttle.

Food	Processed Form
A. chocolate-covered peanuts	_____
B. gum	_____
C. grapes	_____
D. applesauce	_____
E. corn	_____
F. soup mix	_____
G. meat	_____

CHOICES: dried, irradiated, no change, intermediate moisture processing, thermostabilized, freeze-dried

ANSWERS A. no change B. no change C. intermediate moisture processing D. thermostabilized E. freeze-dried F. dried G. irradiated



# SCREEN SCAN

"Learn to Eat"

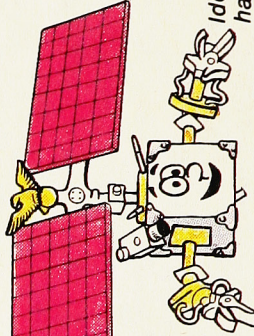
??? Question ???  
If you were a Shuttle pilot, how would you:

- Reduce food weight and still take all the food you need?
- Freeze-dry corn?
- Dehydrate cereals?
- Thermostabilize applesauce?
- Process grapes by intermediate moisturization?
- Preserve bread?
- Store goodies like nuts, gum and crackers?

!!! Answer !!!

- Right! Process the food!
- Remove water to make it lighter in weight and less bulky.  
Freeze and vaporize ice from it.  
Really dry them out!  
Cook and seal in cans or packages!  
Dry them into raisins!
- Use rays, not refrigerators  
Take them aboard just as they are!

# IMPULSE INPUT



Identify one or more foods that you have eaten within the last week that were processed by each of the following methods:

Food Processing Method

Name of Foods

Irradiation

Thermostabilization

Freeze-drying

Intermediate moisture processing

Drying



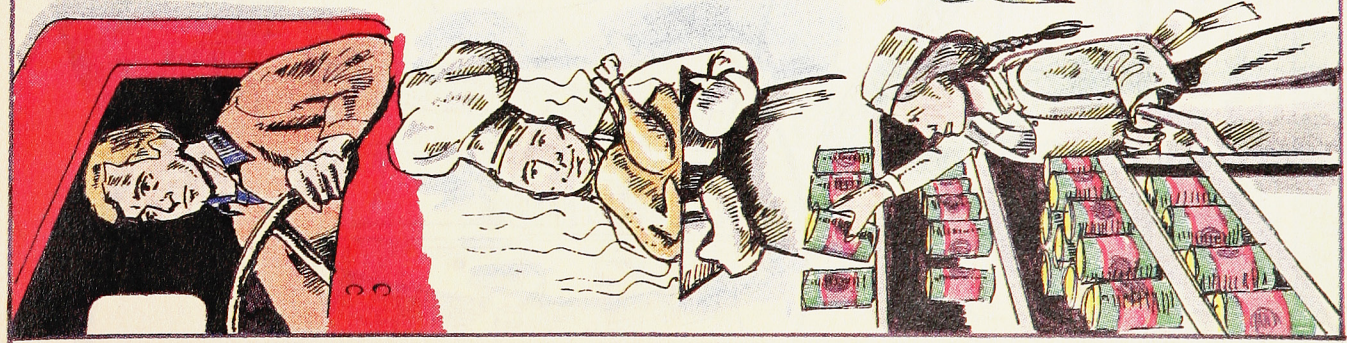


4. Using the choices given below, write in the food-related functions these people perform.

- 1. trucker \_\_\_\_\_
- 2. waiter \_\_\_\_\_
- 3. dietitian \_\_\_\_\_
- 4. food technologist \_\_\_\_\_
- 5. cook \_\_\_\_\_
- 6. farmer \_\_\_\_\_
- 7. grocery store stocker \_\_\_\_\_
- 8. packaging-machine operator \_\_\_\_\_

CHOICES: grows food, puts foods into containers, plans menus/diets, prepares meals, processes foods, serves foods, delivers food products, puts food on shelves

ANSWERS 1. delivers food products 2. serves foods  
 3. plans menus/diets 4. processes foods 5. prepares meals  
 6. grows food 7. puts food on shelves 8. puts foods into containers



# IMPULSE INPUT

Interview two people who work in food-related jobs. Do a short report on what he or she does and how the worker feels about the job. Now, imagine that tomorrow you'll do one of those jobs. Write a short story describing what your day would be like from the time you wake up until the time you go to bed. What time would you have to get up? Who would you see or work with during the day? Where would you eat your meals? What would you wear? Attach your short story to this page.

What other food-related careers can you think of? List them here:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# SCREEN SCAN

## The Straight Facts

Everyone Needs Nutrients and Calories for Growth and Energy

Q. How do you get nutrients and calories?  
A. Eat a variety of foods everyday.

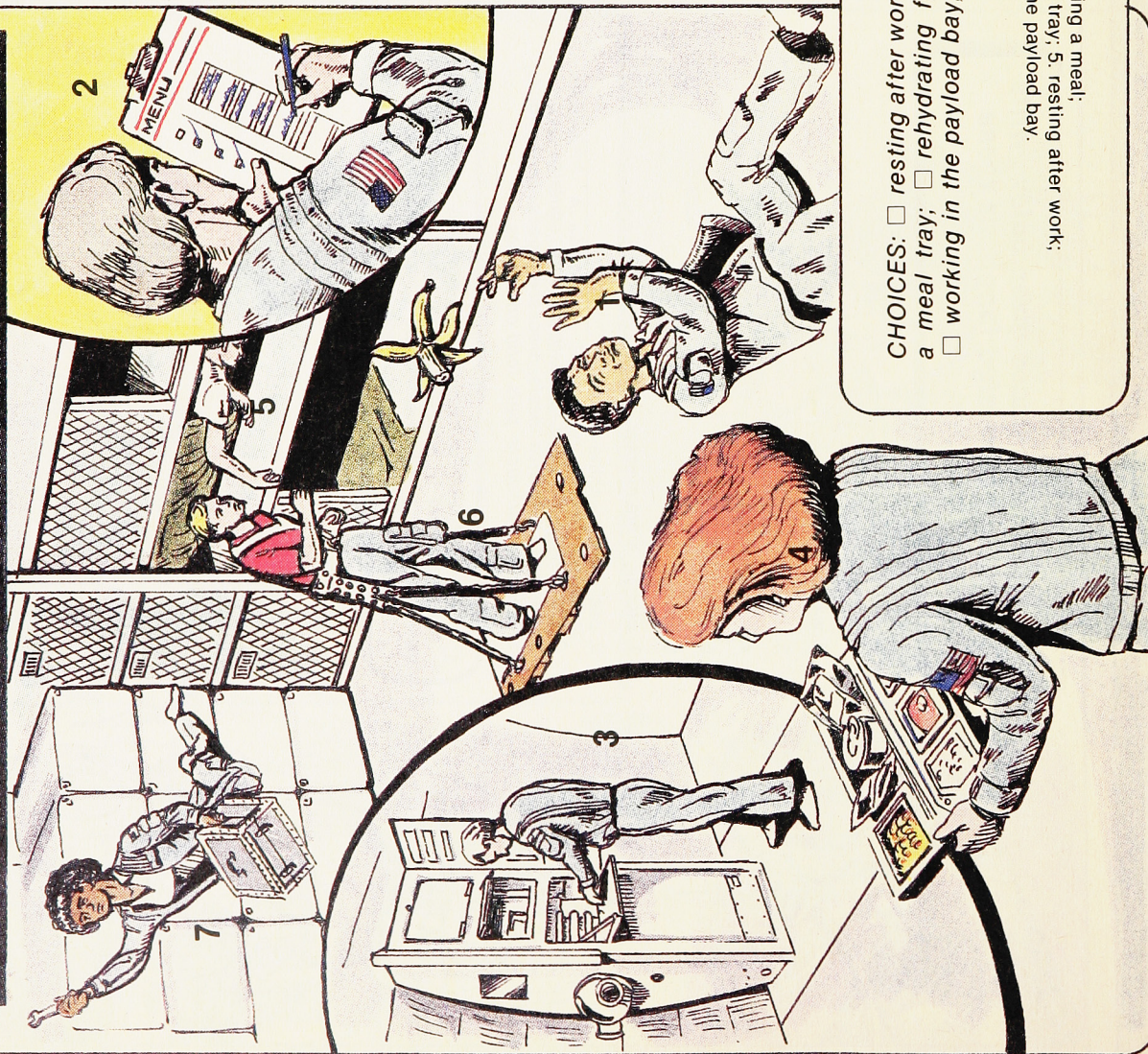
## Linking Exercise and Nutrition

Q. Exercise helps you burn off calories.  
What else does it do?

A. It also helps you maintain your weight, good physical condition and a general feeling of wellness.



5. Here's a full 7-person crew on the Space Shuttle. Match what each crew member is doing with a description from the choices listed below. How does each activity relate to calories?



CHOICES:  resting after work;  eating a snack;  carrying a meal tray;  rehydrating foods;  exercising for health;  working in the payload bay;  planning a meal.

ANSWERS 1. eating a snack; 2. planning a meal; 3. rehydrating foods; 4. carrying a meal tray; 5. resting after work; 6. exercising for health; 7. working in the payload bay.

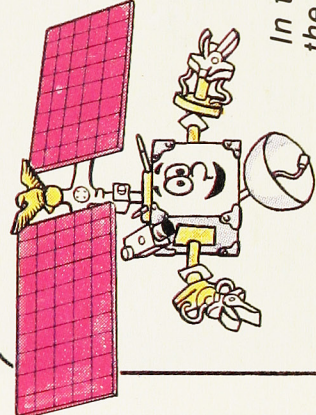
# SCREEN SCAN

"Check Your Calorimeter"

- 3500 lose one pound
- 350 work hard for one hour
- 250 walk for one hour
- 150 prepare dinner for one hour
- 125 plan at desk for one hour
- 80 sleep for one hour
- + 300 have small snack
- + 1500 eat a full meal
- + 2500 calorie need for one day

Everyone Needs Nutrients and Calories for Growth and Energy

# IMPULSE INPUT



In the boxes below and to the left, put a check beside each Space - Shuttle - like activity you're involved in every day. Write a paragraph about how your daily activities are affecting your total well being. Consider your eating habits, exercise and activity, and rest.

H	T	R	A	E	M	B	P	I	L	I	P	T	K	I	N	O							
C	H	N	Z	I	O	W	R	S	M	O	O	T	I	D	E	S							
L	A	N	O	D	A	E	A	M	J	M	C	I	E	X									
T	U	O	S	N	L	E	A	S	U	O	A	E	E	R	F								
W	E	I	G	H	T	L	E	S	L	B	N	O	C	O	L								
E	W	T	L	M	A	L	C	E	F	O	O	N	M	I	A								
E	I	A	P	Z	N	C	C	G	S	A	O	R	B	I	T								
O	H	T	G	I	V	A	D	L	G	S	T	G	K	E	N								
C	U	O	H	U	P	M	E	E	R	C	T	S	P	A	N	G							
E	U	E	L	E	D	U	F	I	P	O	P	I	A	N	K	H	E	A	K	A	U	G	R
R	O	N	T	P	A	N	E	R	Z	A	D	O	F	B	B	M	V						
R	I	B	E	V	R	M	R	O	C	K	E	T	A	B	M	T							
E	L	A	K	T	B	E	U	R	Z	A	M	G	R	B	Y								
M	F	S	C	A	T	T	R	A	C	T	I	O	N	O	E								
E	A	S	L	B	E	O	S	P	V	I	E	E	I	T	M	E	C						

(Answer to puzzle on page 5)

# MY BLUE SKY 4-H RECORDS

My Name \_\_\_\_\_ My age \_\_\_\_\_

My Address \_\_\_\_\_

## FORCES/FIBERS/FOODS AND THE SPACE SHUTTLE

**FORCES**

**At least 2  
things I tried:**

**FIBERS**

**At least 3  
things I learned:**

**SPACE FOOD**

**At least 2  
activities to  
share  
knowledge and  
skills with  
others:**

## DEDICATION

These educational materials are dedicated to the memory of the Space Shuttle *Challenger* crew who lost their lives in the explosion of January 28, 1986. These astronauts focused their careers on the Space Shuttle and its technology, and chose to lead us in the exploration of space.

U.S. Air Force Lieutenant Colonel Ellison S. Onizuka of the *Challenger* crew was a former 4-H'er and the first Japanese-American and native Hawaiian to fly in space. His first mission was in January, 1985. During that mission he carried with him three 4-H flags. He credited 4-H programs with giving him opportunities to develop self-confidence, the ability to achieve and a spirit of exploration and challenge. LTC Onizuka was assisting in the production of *Blue Sky* before his death and is featured in the television programs.

## ACKNOWLEDGEMENTS

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