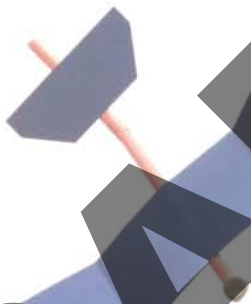
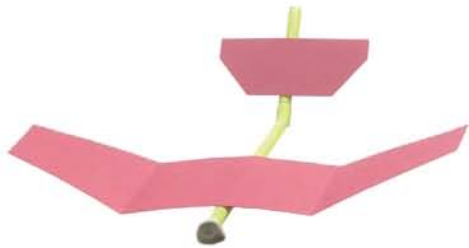




Making Moving Models



Peter Riley



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Contents

Introduction 4

Carts 6

How to Make a Cart 7

Motors 10

How to Make a
Rubber Band-powered Crawler 11

Gears 13

How to Make Gears 14

Pulleys 16

How to Make a Pulley and Winch 17

Sailboats 19

How to Make a Sailboat 20

Submarines 22

How to Make a Submarine 23

Wing Shapes 24

How to Make an Airplane Wing 25

Gliders 26

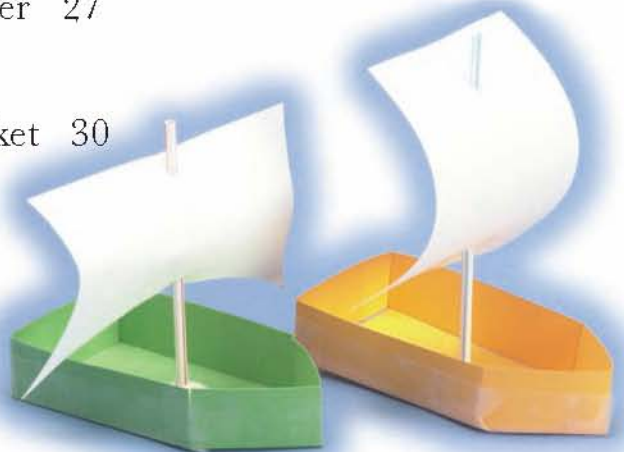
How to Make a Glider 27

Rockets 29

How to Make a Rocket 30

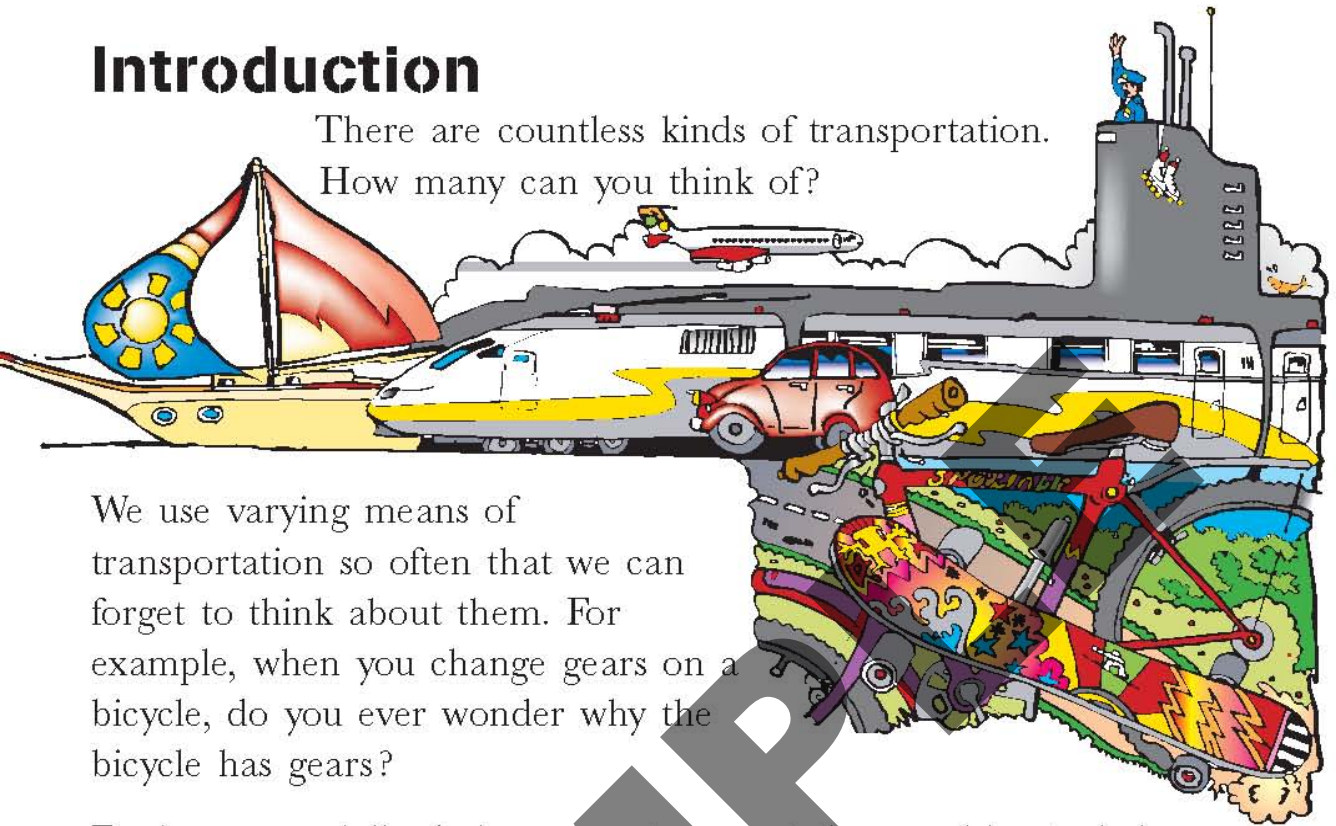
Glossary 31

Index 32



Introduction

There are countless kinds of transportation.
How many can you think of?



We use varying means of transportation so often that we can forget to think about them. For example, when you change gears on a bicycle, do you ever wonder why the bicycle has gears?

Engineers specially design every transportation machine to help you move more easily.

First, the engineers ponder how the **vehicle** should look and how it should work. They examine all the **forces** pushing and pulling the vehicle, then they devise **plans** showing the shapes and sizes of the vehicle parts.



A computer-drawn plan of a jet



These engineers are looking at a **prototype** of an airplane.

Second, engineers use the plans to make the parts and assemble the vehicles.

In this book you can discover what it is like to be an engineer. First, you can follow the instructions to make a model. The instructions follow a basic design for each model. Then, when the model is complete, you can examine it and attempt to design a better one. For example, you could make it faster, stronger, or larger.

The instructions are divided into two parts: “You will need” and “What to do.”

Read the “You will need” section first and collect the items together. You may need an adult’s help to prepare some of the items.

You should be able to follow the “What to do” section on your own.

This is a safety warning. Take extra care on this step.

How to Make Gears

You will need

- circular objects such as rolls of adhesive tape or small jar lids (for a compass)
- corrugated cardboard
- scissors
- glue
- tacks

What to do

- 1 Draw around circular objects of different sizes to make various-sized discs of corrugated cardboard (or use a compass to draw the circles). Cut out the discs.

Draw around the circular objects.
Cut out the round shapes.
- 2 Cut thin strips of corrugated cardboard and peel them apart to show their wavy surfaces.

Peel the top layer off the cardboard.
Corrugated cardboard
- 3 Glue the wavy surface of the corrugated cardboard to the edges of the discs with the wavy sides facing outward.

Give the wavy cardboard to the edge of the disc.
glue
- 4 Find the center of each disc by drawing two lines across its diameter (or look for the central point made by the compass).

Draw two lines across the center of the disc.

14

You could use colored card to make your model, or you could decorate it later.