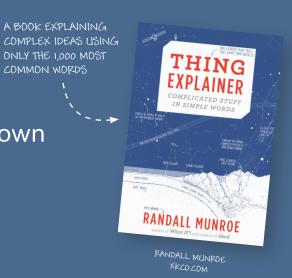
LIFTING ROOM

Boxes that carry people up and down

You've learned about both horizontal and vertical one-dimensional motion. A classic example of vertical one-dimensional motion is an elevator. Here's an explanation of how elevators work—and why they are a safe way to travel up and down.



THE STORY OF LIFTING ROOMS



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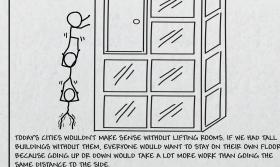
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HARDWARE

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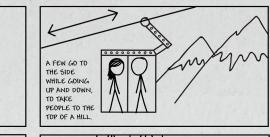
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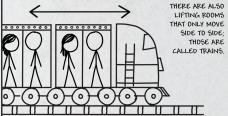
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MOST LIFTING STRAIGHT UP







LIFTER -

These lifters usually sit in a machine room above the top floor the lifting room can visit. They use power to turn a big wheel that pulls a line running between the room and a weight.

WEIGHT

This weight makes it easier for the puller to lift the room. It hangs down on the other end of the line holding the room, so when the puller at the top lifts the room, it's also lowering the weight.

PULLING LINES

Lifting rooms are held and lifted by a big group of metal lines. There are usually around four to eight of them, but it can be more or less than that.

These lines are very strong. Usually, even just one of them would be enough to hold the whole room on its own, but we use more just to be safe.

GRABBERS

If the fall feeler pulls on the line, these grab the metal stick really hard and stop the room from moving.

- FALL FEELER

This wheel is joined to the room's stopping grabbers by a line. As the room moves up and down, the wheel turns.

If the room starts going down fast, the wheel starts spinning fast, and the little arms in the middle of the wheel swing out and catch onto the teeth around them. This makes the wheel stop turning, which makes the room suddenly pull on the line—setting off the room's stopping grabbers.

METAL STICK

LIFTING ROOM

000000

PRETEND CONTROLS

There are controls on the inside of a lifting room that you use to tell it where you want to go. Some of these controls, like the one marked "DOOR CLOSE," don't always seem to do anything.

Some people say that those controls don't even go anywhere, because the lifting room's computer knows when to open and close the door better than you do.

This is half true. On some new lifting rooms, the DOOR CLOSE control might not normally do anything. This is different in different buildings; it's up to the person who owns the building to decide whether to make these controls work.

But the DOOR OPEN control is always joined to the lifting room's systems, in case fire fighters need to take full control of the lifters—by putting a special key into the control place—to use them while fighting a fire.

Chapter 2 Motion in One Dimension

LIFTING ROOM

LINE STOPPER

This thing listens to the different parts of the machines, sometimes with the help of a computer, and grabs the line if anything goes wrong.

LINE

HOLDER

If you face the

of the door,

back wall instead

people will think

you're strange.

The line stopper also grabs the line when the room stops at a floor to make sure it doesn't move while people get on and off. It's made so it will keep holding on if the power goes out.

POWER LINE -

This line brings power for the lights and controls in the lifting room. It sometimes runs to the top of the hallway, where the pulling machines are, or sometimes to the side of the wall part of the way up the hallway.

WEIGHT LINE ------

This line is used in the lifting rooms in tall buildings to help keep the weight on the puller even.

When a room is all the way at the top or bottom, the lines holding it add to the weight on one side. When that happens, most of the weight of this line hangs on the other side, which keeps things even.

If a lifting room does fall, these catchers hit a metal plate on the bottom of the room and make the landing a little softer.

There's a second catcher for the weight. -

` POWER FROM BUILDING

Lifting rooms use a lot of power, but the lights and air systems in the building use even more.

` TALL HALLWAY

The lifting room sits inside a long hallway that goes up and down instead of to the side. It can be longer than any of the normal hallways in the building, but most people never see it.

DOORS

These doors line up with the doors on the room. When the lifting room stops, both doors open together.

EMPTY ROOM

Lifting rooms are usually empty. People don't put chairs or tables in them except to move those things to other floors. If you tried to use one of these rooms as an office, someone would probably yell at you.



PULLING LINES



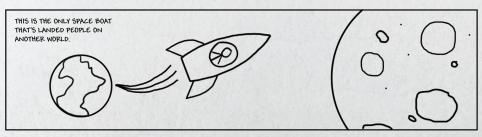
US SPACE TEAM'S UP GOER FIVE

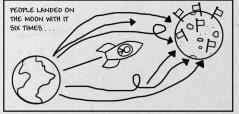
The space boat that took people to the moon and back

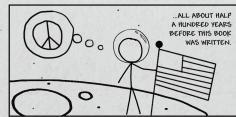
You've learned the velocity required to attain orbit. Have you ever wondered how engineers design a vehicle capable of putting astronauts and cargo into orbit? Here's an explanation of what they designed and why it works.



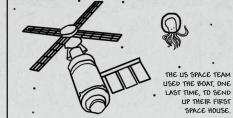
THE STORY OF TRAVELING TO OTHER WORLDS

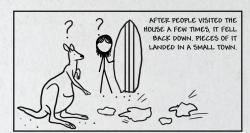


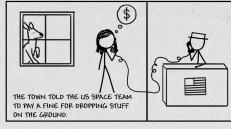


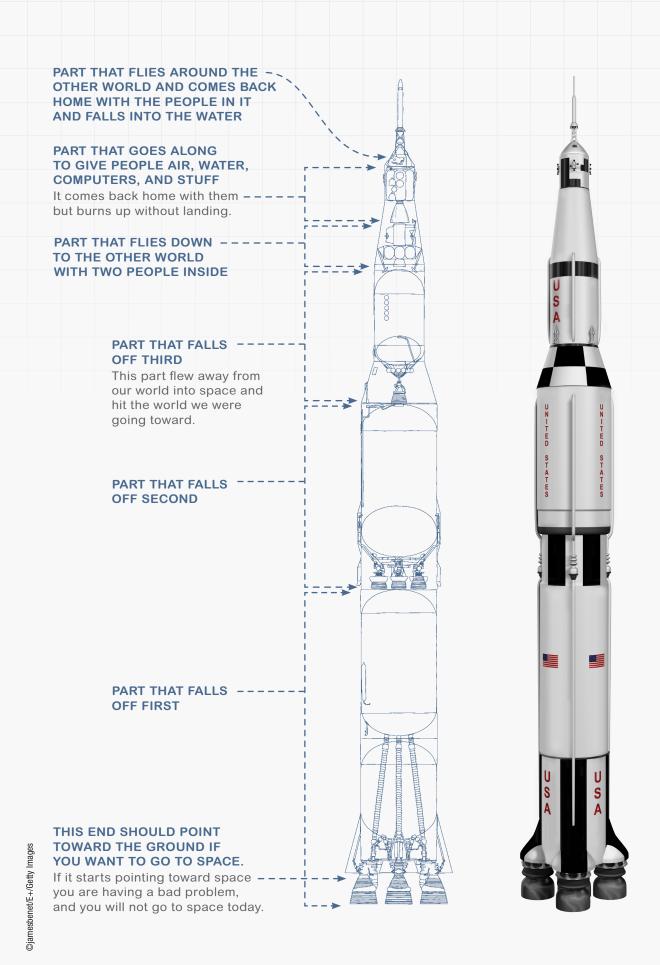












269A Chapter 7

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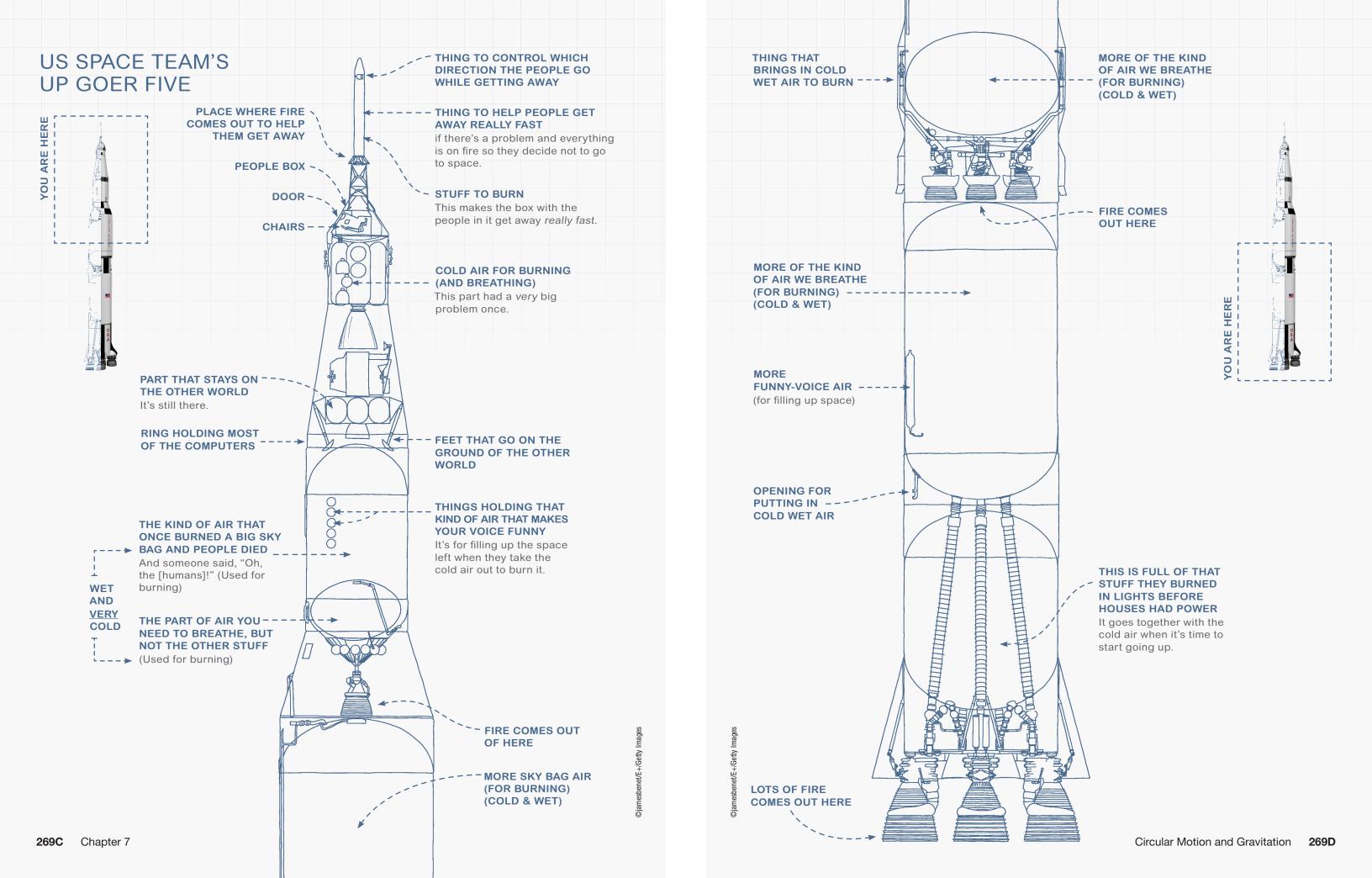
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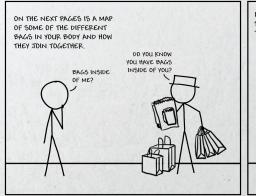
BAGS OF STUFF INSIDE YOU

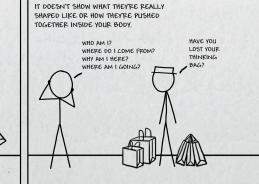
Parts of your body and how they work together

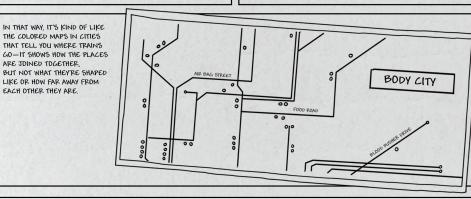
You know that an organ system is two or more organs working together to perform body functions. Here's a look at several organ systems in the human torso.

A BOOK EXPLAINING COMPLEX IDEAS USING ONLY THE 1,000 MOST THING COMMON WORDS RANDALL MUNROE

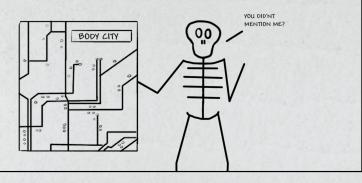
THE STORY OF WHAT'S INSIDE YOUR BODY







THERE ARE LOTS OF IMPORTANT PARTS OF YOUR BODY THAT BUT THAT'S OKAY; A BODY HAS TOO MANY PARTS TO SHOW ON



HOLE TO OUTSIDE

This hole is in your nose. It helps you breathe and lets you smell things.

HOLE TO OUTSIDE

This is the hole in your mouth. It's where air goes in and out, food goes in, and words come out.

Note: Some people don't like it when you make words come out while you're putting

This makes the water in your mouth that helps food fit down your neck

HEAD **MOUTH WATER MAKER PARTS**

BLOOD

THINKING

BAG

THIS IS WHAT YOU THINK WITH

When you read words (like these), this part of your body turns them

By choosing the right words, you

idea like it happen in someone

else's. That's what's happening

can take an idea that's happening in your head and try to make an

into ideas.

right now.

(to your arms and the rest of your head)

This pushes on your blood about once a second to send it around your body.

BLOOD PUSHER

These add air to your blood. They get bigger and smaller to pull and push air in and out.

AIR BAG

PART BREAKER

BLOOD

CHEST

PARTS

(from other body parts) This bag breaks tiny things into even smaller, simpler parts they're made of. Your body uses it in many ways, like to get rid of the stuff in wine that makes you feel strange (which keeps you from feeling strange forever). It also makes water for your hallways. If this bag has a problem, your eyes turn yellow and your body stops working.

BLOOD CLEANER

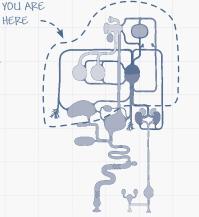
AIR BAG

Sometimes, blood gets stuck in here.

That's one of the biggest reasons people's bodies stop working.

BLOOD HALLWAYS

These carry blood around your body. If you get a hole in them, the blood starts to fall out. If this starts happening, it can be a big problem, and you should fix it fast



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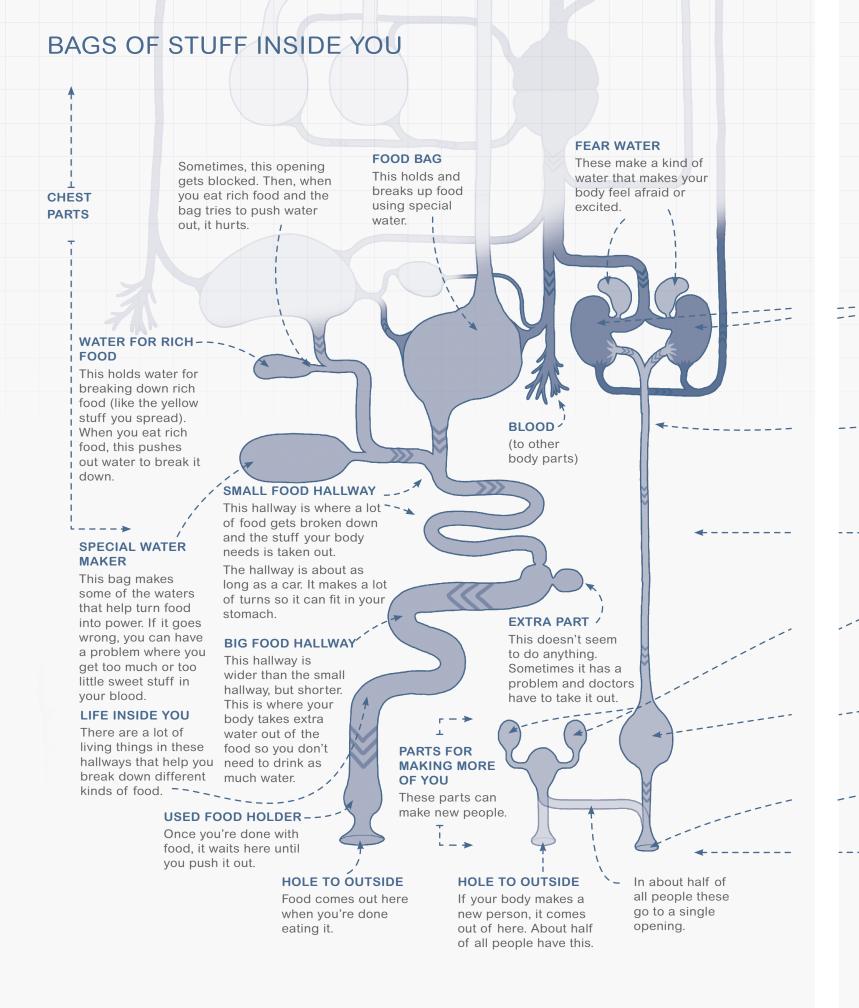
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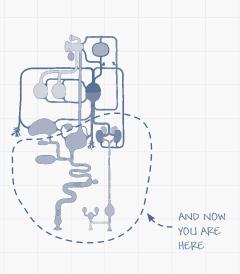
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BLOOD CLEANERS

These look for stuff in your blood that you're done with or have too much of—like extra sweet stuff, or stuff from the doctor that you ate to feel better—and send it to be pushed out of your body.

YELLOW WATER HALLWAY

Most of the time, the water from your blood cleaners is yellow, but eating certain colorful foods can make it change color for a while. (If it turns dark or red, it may mean you're sick.)

BODY PLAN HOLDERS

These parts hold lots of plans for new people. Each plan is made from pieces of the plans used to make you. These parts also control how your voice, hair, and body grow.

LOWER

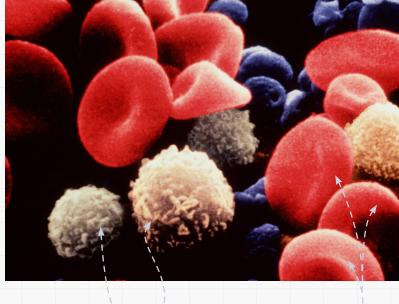
PARTS

YELLOW WATER HOLDER

This holds yellow water until you push it out.

HOLE TO OUTSIDE

The yellow water from your blood comes out here.

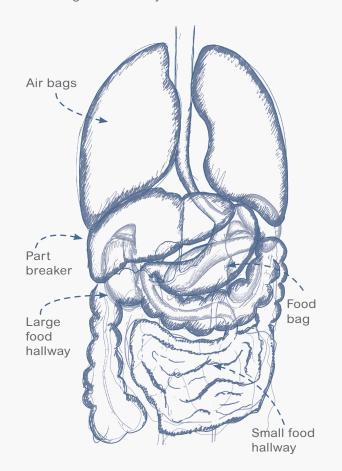


WHITE BLOOD PIECES

RED BLOOD PIECES

PUSHED TOGETHER

In real life, these parts are all pushed together inside your chest like this.



47C Unit 6: Diversity of Life