Have you ever thought about how many different things your brain can do? This amazing organ, which scientists are only beginning to understand, has been refined through millions of years of evolution. It helps you process information—often before vou are aware of it. And it figures out things fast, even when information is incomplete. Did you know that your brain even controls what you enjoy? The brain does this to help you survive and to keep your body's internal environment stable and balanced, a state known as *homeostasis*. The brain is awesomely complex and crucial to who we are and how we live.

# The Awesomely Evolved Human Brain

#### THE BRAIN'S REWARD SYSTEM

Your brain has evolved to make you feel good when you do things that help you survive. The pleasure you feel is caused by the chemical dopamine, which is released in your brain's reward system. When you enjoy certain activities, dopamine is released, and you are more likely to repeat those activities. This brain system has evolved to help you learn and grow, and to become healthy, happy, and successful.

THAT LOOKS GOOD...The brain has

WHAT A RUSH! You live to skateboard.

CRUSH ALERT When you first met, you

couldn't stop flirting with each other. Why?

sweetest fruits—natural, unprocessed

foods that contain the highest energy. Why?



#### WHEN TOO MUCH OF A **GOOD THING CAN BE BAD**

The brain's reward system can go haywire. This is especially true in today's world, where many of the foods we eat are highly processed, and technology invades almost every aspect of our lives, overloading us with information. Because evolution takes millions of years, our brains have not yet caught up with the demands of today. This overload can throw us out of balance and lead to *compulsivity*—or the inability to stop a behavior, even when it's harmful.



"I JUST ATE AN ENTIRE **FAMILY-SIZE BAG OF CHIPS."** 



TRYING DRUGS IN ORDER TO FEEL A RUSH



**CHECKING YOUR PHONE FOR TEXTS 100 TIMES AN HOUR** 

### **Dopamine Overload**

Ever feel like you just can't stop? Maybe it's eating potato chips, or maybe it's playing a video game over and over-it can be different things for different people. These experiences overstimulate the brain's natural reward system, causing some people to compulsively repeat certain behaviors. like overeating, which can cause obesity.

It also happens with drugs, which overload the brain with dopamine. This is why for some people, experimentation can lead to addiction.

150%



HEALTHY **EATING** 



**DRUGS** 

## **BRAIN EVOLUTION** TIMELINE



MILESTONES

WALKING LIPRIGHT

6.000.000 Years Ago



THE EARLY BRAIN

Focus on Survival—MILLIONS OF YEARS

2.600.000 Years Ago

RAPID BRAIN GROWTH





CREATION OF

SYMBOLS<sup>2</sup> 40.000

‡Φ CREATION OF AI PHARFT3

THE BRAIN IN THE MODERN AGE Dramatic Technological Advances— HUNDREDS OF YEARS



FOODS TECHNOLOGY



**500 Years Ago to TODAY** 

More Info: For additional facts about the brain and drugs, visit scholastic.com/headsup and teens.drugabuse.gov.