Student Book audio and video scripts

Unit 1, page 5, exercises 3 and 4 Factflix VIDEO

Sara Hi there, and welcome to Factflix! I'm Sara …
Tom … and I'm Tom. Now our question today is "How have animals inspired us?"
Sara And we're looking specifically at biomimicry, where we take inspiration from nature in order to solve problems or improve technologies. "Bio" refers to nature and living things, as in "biology." "Mimicry" is like "copying."
Tom A brilliant example of this is the kingfisher bird. So, what does this bird have in common with the Japanese bullet train? You see, a Japanese engineer noticed that kingfishers fly through the air very efficiently and can dive into the water without making much of a splash. At the time, he was working on the bullet train, which made an extremely loud noise when it went through tunnels. Inspired by the kingfisher's beak, he and his team re-designed the train's front to make it more aerodynamic. As a result the train was quieter, faster, and more energy-efficient than ever before!
Sara Another groundbreaking design we have borrowed from animals comes from the fins of humpback whales. You see, they have bumps on the edges of their fins that enable them to move easily through water. A marine biologist decided to apply the same design to the fans on wind turbines. The bumpy blades made the fans 20% more energy efficient.
Tom There are so many examples out there of how biomimicry has inspired and improved design.
Sara Like the eco-friendly cardboard bicycle helmets that mimic the bone structure of the woodpecker, which has a shock absorbing skull. This allows it to drill trees up to 12,000 times a day!
Tom Or, how the designers of camera lenses were inspired by moths' eyes, which are anti-reflective so they don't attract predators. They have tiny pillars on the outside that allow light in but stop it from bouncing out again. This has been mimicked by camera lenses to do exactly the same thing.
Sara And finally, did you know that swimsuits designed with overlapping layers, like shark scales, can help swimmers move through water much more quickly?
Tom So, that's why Michael Phelps won so many medals! I need a new swimsuit.
Sara Good idea. But you still won't be Michael Phelps!
Tom True enough! But, as you can see, animals have given us a lot of ideas for new designs and innovative engineering.
Sara I wonder what problem they'll help us find a solution to next? See you next time everyone!
Tom Bye!

Unit 1, page 11, exercises 4 and 6 1.02

Presenter Today on Global Matters, we are looking at animal products, the impact these products have, and what alternatives there might be. There's no disputing the fact that there are problems associated with animal products, but if we gave them up, what would we replace them with? In the studio today we have environmentalist Dr. Helen Brady to talk about the challenges we face and make a case for reducing our reliance on animal products. Welcome, Dr. Brady.
Dr. Brady Thank you. Well, the fact of the matter is that our dependence on animal products is bad for us, bad for the environment, and bad for animals, too.
Presenter Can you back up those claims?
Dr. Brady Lots of studies already have. Let's take meat as an example. Statistically, there is a proven link between excessive meat consumption and heart disease.
Presenter Although eating meat did help us evolve – apparently eating cooked meat enabled our brains to grow quickly. So maybe we should eat some?
Dr. Brady On the face of it, that would make sense. But nowadays, we have access to such a wide variety of plant-based foods that we can get all the nutrients we need from that, with no effect at all on our development.
Presenter That's good to know.
Dr. Brady There's also an ethical dimension to consider. Meat, dairy, and eggs are often produced on industrialized factory farms, where animals have a very poor quality of life. That's something we have to take seriously.
Presenter I agree, although there are small-scale organic farms that are more ethical in that they have better conditions for animals.
Dr. Brady Yes, except products from these farms are often expensive, and most people cannot afford them. And anyway, I think we are missing the main point about animal products.
Presenter Which is?
Dr. Brady The cost to the environment – it's simply huge! Did you know that it takes around 300 liters of water to produce a kilo of vegetables, but more than 15,000 liters to produce a kilo of red meat! There are plenty of statistics and charts like these that highlight the enormity of the problem. By 2050, the global population could be more than nine billion. Let's make no bones about this – there is simply not enough water to produce meat for that amount of people.
Presenter That's a concern. But not all meat is equal. Looking at this chart you have given me I can see that a kilo of chicken uses around 4,000 liters of water, which is less than a kilo of nuts. Apparently it takes about 9,000 liters to produce a kilo of nuts, or twice as much as a kilo of chicken!
Dr. Brady That's true, but there is also the use of land to consider. Animals use around 39% of the Earth's habitable land, which includes land used for making their feed. Compare this with the 11% that is used for crops. We shouldn't make light of that fact.
Presenter What about other animal products, such as leather. Should we avoid it?
Dr. Brady That's an interesting question. Leather production creates a lot of pollution from the toxins used in tanning, but leather is a by-product of the animals reared for meat. To produce another completely new product could create a bigger carbon footprint.
Presenter So should we keep on buying leather?
Dr. Brady Not necessarily. The thing is we need to reduce our overall dependency on any product that comes from animals. The greenhouse gases emitted in producing animal products are huge: a recent study found that the top three meat firms produced more greenhouse gases in 2016 than the whole of France.
Presenter So we seem to have a lot of evidence that proves that using fewer animal products will help the environment and our health.
Dr. Brady Exactly. According to the United Nations, we all need to use fewer animal products and eat more vegan meals, which will help in the fight against climate change. The bottom line is this: reducing animal products will help the environment, animals, and ultimately ourselves, too.

Unit 1, page 13, exercises 2 and 4 Reflect VIDEO

Why are animals important?
How have animals inspired us?
Designers often look to the natural world when trying to make something faster, stronger, or more flexible. For example, an adhesive material, capable of mounting a TV to a wall, was inspired by the skin of a gecko. This process of adopting principles from the natural world is known as biomimicry, and it has helped designers come up with many amazing new technologies.
Can animals be good companions?
We love pets, but the idea of animals as companions is relatively recent. It wasn't until the 19th century that pet keeping became popular and even then, it was only the upper classes who could afford to keep animals for pleasure. Today, however, around 85 million American families own a pet. Some studies have shown that pets decrease stress and make people more active and sociable, which has a positive influence on emotional and physical health.
Why do we need animals and insects?
Humans rely on animals and insects for many reasons: food, clothing, healthy soil to grow plants, and to maintain balanced eco-systems. Take frogs, for example. Tadpoles clean our waterways by eating algae. Frogs also eat insects, so without them, there would be less pest control. And they are food for birds, fish, and other mammals, so without frogs these animals would struggle to survive. But recently, frog populations worldwide have been rapidly declining. Estimates suggest that over 200 species have died out since the 1970s! If frogs and other animals continue to disappear, the planet's eco-systems will suffer, and so will we.
Do we need animal products?
Livestock farming requires valuable resources, such as water and land, so animal products are generally bad news for the environment. But the good news is there are alternatives. Most meat products can be replaced by cheaper vegan alternatives, such as soy meat, or tofu. Other animal products such as leather can also be replaced by plants. One company has created a leather substitute by weaving together the fibers of pineapple leaves. Experts agree that we need to become a more water-efficient society - and fast! Changing our reliance on animal products will be a big help in doing this.
How should we treat animals?
New discoveries about the brain have improved our understanding of animals. We now know that many animals feel the same kinds of sensations and emotions as we do. Elephants, for example, appear to grieve when one of their group dies. And some animals even have a sense of humor, like chimpanzees and bonobos, who often play practical jokes on each other. So, do animals with more complex emotions deserve more rights? Or should we treat them all the same? What do you think?

Unit 2, page 15, exercises 3 and 4 Factflix VIDEO

Tom Hi guys and welcome to Factflix with me Tom…
Sara … and me Sara.
Tom What happened to your arm?
Sara I fell off my skateboard and it's really sore. But the good news is it's not broken, and I got to have an X-ray. Cool, huh?
Tom Yeah – and it leads us perfectly to the question of today's video: "Why do we look below the surface?"
Sara Sometimes, the exterior of something doesn't tell us what we need to know, and we need to see inside or underneath to find out more. That's why doctors use x-rays, which were first invented in 1895. One of the first uses of x-rays was to locate a needle in a patient's hand so it could be removed!
Tom But it isn't just doctors that look beneath the surface. Suppose that historians only ever looked above ground; they wouldn't know nearly as much. Old objects get covered up by centuries of dust, earth, and vegetation, so you have to dig down for them.
Tom Archaeologists have uncovered whole subterranean cities this way.
Tom And these works by ancient Greek writers were believed to have been lost forever, until archaeologists found fragments of them in a historic Egyptian garbage dump.
Sara Old buildings can tell interesting stories about their past as well, if you look below the surface. In 2013, restorers were renovating the interior of the Sforza Castle in Italy, when they discovered part of a mural by Leonardo da Vinci. It had been concealed under 17 layers of white paint!
Tom Another reason for looking below the Earth's surface is to understand the Earth itself better. Climate scientists, called paleoclimatologists, collect ice cores from deep inside glaciers, sometimes as deep as 3 km below the surface, where the ice is about 800,000 years old. The ice and the bubbles of atmospheric gases inside them reveal a lot about what the climate was like in the past.
Tom With this information, it's possible to better understand how the Earth's climate is changing in the present and predict how it might change in the future.
Sara This links to another reason we look beneath the surface - to extract the materials and minerals we need. This is called mining, and without it we wouldn't be able to make most of the technology we use every day, like cars, planes, computers or even our phones.
Sara But this technology causes pollution too, which is why we need renewable energy. However, even renewables require some mining. The best long-life batteries to store electricity from wind and solar power use a substance called antimony, and this also has to be taken from the ground. Looking ahead, estimates suggest we'll run out of antimony within 30 years, unless we find more!
Tom That's a very scary thought! Of course, we all have our own fears and anxieties - they're part of our inner self rather than our outer self. But we don't always show our true feelings or share our worries and difficulties with other people. We usually have to get to know somebody better to find out what's going on inside.
Tom So, Sara, how are you feeling?
Sara I'm OK, but my arm still hurts.
Tom Oh, yeah - sorry, I forgot! But that's it for today's show. Bye!
Sara Nope. That's not happening today. See you next time!

Unit 2, page 19, exercise 5 1.04

Camille Excuse me. We were wondering why there were so many tunnels underneath Paris. Were they dug specifically for the human remains?
Guide No, they weren't. They started out as part of a quarry, dug by people extracting stone to use for building. Lots of buildings in Paris are made of stone from these underground tunnels.
Camille Do you by any chance know which ones?
Guide The Louvre Museum is one example. The stone is that warm gray color that you see all over the city.
Paul And do you know how many kilometers of tunnels there are below the city?
Guide More than 200 kilometers of quarry tunnels. And a lot more if you include all the sewer tunnels, the metro tunnels, and so on. There are some very detailed maps of the tunnels. Artists have gone into the tunnels, too, and created amazing artwork.
Camille Wow! I'd love to see that artwork. Hey, Paul, do you want to try and see it?
Paul Yeah, good idea. Would you happen to know if there are any tours to see the underground artwork?
Guide I'm afraid there aren't. It's illegal to enter most of the tunnels.
Paul Oh, that's a shame.
Guide They're very dangerous, unfortunately.
Camille Oh. We've read that there are a lot of other underground tours, though. Are any of them worth doing?
Guide Well, it depends what you're interested in, but there are a lot of good options. Most people enjoy seeing … .

Unit 2, page 20, exercises 4 and 5 1.05

A We were always moving to a new city because of my mom's job. I went to five schools in six years! By the time I started at my current school, I'd decided there was no point in making the effort with friendships, because they wouldn't last. I didn't even try to be friendly with people. Everyone made assumptions about that, of course, and decided I must be weird. When I finally realized I did want to make friends, it was too late because everyone avoided me. Anyway, one lunch time I was really clumsy. I tripped while I was carrying my tray to a table, and my food went everywhere. A lot of people laughed, but one guy, Dylan, came and helped me clear up the mess. Then he invited me to sit at a table with him and his friends. At that point, things started to get better for me. Dylan and I never became great friends, but his kindness that day gave me the chance to start talking to people, and other friendships grew. Thank you, Dylan!
B When I was younger, I used to be really mean to my classmates. I'd make fun of someone's hair or the way they looked. There was this one boy who used to come to school in odd, old-fashioned clothing. His name was José, and I used to tease him a lot. Sometimes I felt guilty about being mean, but I guess I got a thrill from having a sense of power over other people. You see, at home, I felt power*less*. My big sister was always telling me how pathetic I was. One morning, before school, my sister had been particularly terrible. So when I sat down on the school bus, I sighed loudly. A voice came from behind me: "Having a bad day?" I turned around in my seat. It was José! I didn't really want to speak to him, so just muttered a response: "Yeh, pretty bad." "Why's that?" he said. At first I thought, "Why is he talking to me?" But before I knew it, I was telling him all about my problems at home. He listened carefully and was understanding – he even told me about some problems in his own home life. When I'd finished, he gave me a kind smile and offered me a cookie from his lunch. "What a nice guy," I thought. He did it in spite of everything I had said to him in the past. There was nothing odd about him as a person. I guess it's true what they say: don't judge a book by its cover. He just had an unusual way to dress. Anyway, I accepted his offer of a cookie. It made me think – there was real power in that small act of kindness. I decided, then and there, that was the kind of power I wanted. Not the power you get from being mean, but the power you get from being kind. And little by little, I managed to change my habits. I'm a much nicer person these days.
C I was in a cafe and I'd ordered a tuna sandwich, but the waitress brought me a cheese sandwich instead. I had to wait for her to redo my order, and it was making me late for a meeting with my friends. Eventually, she brought a tuna sandwich, but it had mayonnaise in it, and I'd specifically asked for one without mayonnaise! In my anger, I guess you could say I jumped to conclusions – I told her she was incompetent in front of the other customers. I demanded she get someone else to serve me. Then, when she explained they were short of staff, I said, "Oh, just forget it!" and I walked out of the cafe. Later, I was telling my friend about the waitress, and he said, "Oh, my sister's friend, Raquel, works at that cafe. Poor girl – her dad's in the hospital. I can't imagine how she must be feeling." I remembered the waitress earlier had a name tag – Raquel. I felt so bad that I'd made her day even worse than it already was. Ever since then, I've always tried to keep an open mind about people, because you never know what's going on in their lives.

Unit 2, page 23, exercises 2 and 4 Reflect VIDEO

What's below the surface?
Why do we look below the surface?
We look below the surface of things for all sorts of reasons. It can allow us access to underground resources, new information, or enable us to discover hidden problems. Looking below the Earth's surface can teach us about the past. Fossils, for example, can tell us about species that became extinct millions of years ago. We can analyze them to find out how they lived, died, and even what they ate.
Do plants secretly communicate?
Under the surface of a forest, plants communicate and exchange minerals via a network of fungi growing in the soil. Cooperating with other individuals makes the whole forest more resilient. But some plants take advantage of this system, like these ghost plants. The plant is pure white because it has no chlorophyll and doesn't make food through photosynthesis. Instead, it takes out carbohydrates from the fungal network, and gives nothing back in return, like a thief!
What's under a city?
You may be surprised at what goes on under a city. There are underground transport systems, electricity cables, and sewers. But there may also be ruined buildings, tunnels, secret hiding places, or even whole cities. Underground cities are often, but not always, historic. Beneath the city of Helsinki there is an underground network which was started in the 1980s. Construction below ground continues today and to date the network of tunnels extends to around 10 million square meters.

What hidden reasons do people have for their behavior?
People don't always behave in the way we would like them to, but we shouldn't judge too quickly. Below the surface, they may be dealing with issues in their personal lives. And it's possible you have behaved similarly yourself, and not thought about the way it might appear to others. Or your instinct to judge others may come from your own insecurities. Remember, it's always important to consider what's going on below the surface in yourself and others.
What's below the Earth's surface?
The Earth's surface is divided into 7 major and 8 minor tectonic plates. These slowly move in relation to each other. Beneath the tectonic plates is a layer called the asthenosphere. The rock in this layer is not hard and can move around. And under the asthenosphere are the mesosphere and the core, in the center of the Earth. The core is made up of iron and nickel, which is liquid in the outer core and solid in the inner core. When volcanoes erupt, we get a glimpse into what lies kilometers beneath the Earth's surface!
It's always worth remembering that what's beneath the surface can often give a better understanding of the world around us, as well as many other aspects of life.

Project, page 25, exercises 2 and 3 1.06

Pearl So, first we need to choose a geological feature.
Carlos Why don't we go for the cave system in Vietnam? It's in south east Asia, it's the furthest place away from us, none of us have ever been there, and I don't know anything about it at all. What do you think?
Lucy Actually I know a bit about it. I've at least heard of it. It's so massive that it has its own weather system, with clouds and fog actually inside the cave.
Sofia No way!
Lucy Yeah it's truly amazing. I've seen photos of it.
Sofia Sounds fascinating. I think we should do that one then.
Pearl OK, well we've got the website home page already done here – that's all about the company, Great Geological Expeditions.
Carlos Yes, so that has the selling points, why you should travel with them, pictures, things like that. So people visit the website and, if they click on the Hang Son Doong Cave in Vietnam, it takes them to our web page. What do we need to include on our web page?
Lucy Well, we need information about the geological feature. I think we probably need two people to look at that. It's a lot of work.
Sofia I'd like to do some research into the cave system. Ethan, do you want to do that with me?
Ethan Yes, OK.
Pearl OK, so Sofia and Ethan, you two can look into the background of the geological feature. So you need to find out how it was formed and what it's like now.
Sofia Yes, how it was formed is the actual question for the project, isn't it?
Ethan Can we include pictures and charts, things like that?
Carlos Definitely. And try to find out how old it is.
Sofia OK.
Pearl Lucy what about you, what are you interested in looking at?
Lucy I'm happy to find out some background information about Vietnam. So I could make a travel guide for the country – information to introduce us to the country, language, capital city, currency, things like that.
Carlos Yes, and how to get around. What's the transportation like, how do you get to the cave system, and so on?
Pearl OK, so Lucy is looking at … the country of Vietnam and travel. What else? Carlos, any ideas?
Carlos Safety information. Is it safe to travel there, do you need medicines or any vaccinations, what travel insurance you need maybe?
Sofia That sounds good. Also do you need to be super fit to go climbing and caving?
Ethan That's a good plan.
Pearl Safety information, Carlos. Right. And how about if I do a "frequently asked questions" page, with information about the expedition?
Sofia Perfect.
Ethan What sort of things do you need on the questions page, Pearl?
Pearl Oh, things like do you need a visa, and how much does the program cost.
Ethan Yes, and what's included in the cost: accommodation and meals, and so on.
Pearl Oh yeah, definitely! Somehow I don't think it's going to be a cheap trip!

Unit 3, page 27, exercises 4 and 5 Factflix VIDEO

Sara Hello and welcome to Factflix! I'm Sara.
Tom And I'm Tom.
Sara What's so funny, Tom?
Tom I was just looking at these photos: "Everyday objects that look like faces." Take a look!
Sara OK - they're pretty good!
Tom I'm thinking of sending one in! I tend to spot faces in things pretty easily. You know, round the house, in the clouds - that sort of thing. Isn't it weird that our brains do that? Or is it just me?
Sara No, it's definitely not just you! Today we're exploring the question "Why are patterns important to us?" Noticing patterns isn't a new thing.
Sara Early humans needed to identify patterns, in order to spot predators or identify food that was safe to eat. Today, our brains are incredibly good at detecting all kinds of patterns.
Sara Whenever we make an observation about the environment through our senses, our brain makes a connection with information stored in our long-term memory.
Sara It happens incredibly fast, and we don't need to make a conscious effort to do it. In fact, we can't stop ourselves from doing it!
Tom That's right – humans can't help seeing patterns. In fact, we probably start learning to see them before we're even born!
Tom As we go through life, we're constantly discovering new patterns that get increasingly complex as we get older.
Sara Every subject we study at school involves learning patterns of some kind. These patterns could be … .
Tom Computer programs and algorithms can find patterns in huge amounts of data at lightning speed. No human can do that. And this technology is getting more sophisticated all the time. With these more powerful tools for identifying patterns, we'll be able to make more accurate predictions and get better at making plans.
Tom We'll be able to make more useful generalizations more informed decisions and even make sense of the universe in new ways.
Tom Who knows what technology we'll have 50 years from now and what new patterns we'll be able to observe? But there is one thing we can be pretty sure of whatever happens.
Sara What's that?
Tom We'll still be using it to share pictures of vegetables with faces!
Sara Definitely! Bye everyone!
Tom See you!

Unit 3, page 33, exercises 6 and 7 1.08

Marty It's four o'clock and you're listening to the afternoon show with Marty and Dave. Do you know what, Dave? In the two years that we've been hosting this show, this is the first time I've seen you without your usual afternoon can of soda. What's going on?
Dave Well, I've decided to kick the soda habit once and for all.
Marty You're giving it up?
Dave Well, it's OK as a treat now and then. But I've been reading a book about habits that's inspired me to try to make a few positive changes, including cutting down on sugar.
Marty Oh, OK. Sounds useful.
Dave Mmm. It's *The Power of Habits* by Charles Duhigg. It's really interesting.
Marty Uh-huh. And does it offer some good tips for changing your habits?
Dave Well, the book doesn't claim that it's simple, I'm afraid. In fact, Duhigg says that once you've established a habit, that neural pathway is there in your brain for life.
Marty Yeah? It's bad news if that's true.
Dave But, apparently, even if those old habits are there, we can learn to replace them with new patterns of behavior. The key is understanding how the habit loop works.
Marty OK. So what's the habit loop?
Dave It's a circular process with three parts. First, there's a cue – something in the environment that triggers the habit, that makes us behave in a particular way. With my afternoon soda habit, the cue is the time of day: 3:30, about half an hour before we go on air. That's when I get the urge to go to the cafeteria and get a soda.
Marty Yep. I see. And is the cue always a time of day?
Dave No, not necessarily. It could also be a place, a situation, or a feeling. But when we experience that cue, it automatically triggers a routine – the next stage in the habit loop.
Marty And the routine is the habit itself.
Dave Right. So in my case, the routine is walking to the cafeteria, buying the soda, coming back to the studio, and drinking it. And that routine leads to a reward – a positive feeling or effect.
Marty Uh-huh.
Dave As the habit loop repeats itself over and over again, the reward becomes more and more strongly associated with the cue. You experience the cue, you anticipate the reward, and that's the motivation for the routine.
Marty Sure. And sooner or later, that habit becomes really difficult to break.
Dave Exactly. So Duhigg says that to change a habit, we need to understand the cues and, most importantly, the rewards associated with it. What are the rewards and are there any hidden rewards we might not be aware of? And could we connect the old cue to the same rewards using different behavior? So, going back to the soda example, what rewards am I actually getting from buying the soda? I'm probably thirsty because I don't drink enough water and I'm probably craving energy from the sugar and caffeine. But it's not just that. Buying the soda is an excuse to go for a walk and chat with people in the cafeteria. So I thought, what if I walk to the cafeteria but don't buy the soda?

I could get an apple instead. At least that'd be healthier and it might give me most of the same rewards.
Marty We'll see! But tell me, is the only way of breaking a habit to replace it with a new one? I mean, can't we just develop better self-control? Make a conscious decision to choose an apple over a can of soda each time we're faced with that choice?
Dave Yeah, I see your point. But it seems that a lot of our everyday behavior is automatic. From what I've read, some studies say it's more or less 40%.
Marty Oh, really? That's kind of scary.
Dave Yeah, I know. Psychologists have looked into what makes some people better at achieving goals than others and they're starting to think that it isn't necessarily that successful people have more willpower or self-discipline. Instead, maybe they're just more likely to form good habits instead of bad ones. They're still on autopilot like everyone else – it's just that their automatic behavior is going to the gym or studying instead of lying on the sofa scrolling through their phone.

Unit 3, page 35, exercises 2 and 4 Reflect VIDEO

How do we use patterns?
Why are patterns important to us?
Patterns are fundamental to the way humans think and learn. Now, thanks to developments in artificial intelligence and machine learning, the potential for discovering new patterns has never been greater. But what could the rise of technology mean for the human race?
How do computer programs use patterns?
An algorithm enables apps or computer programs to extract patterns from huge amounts of data, and we use them every day. They help us decide what to read, watch, listen to, and buy, and they're starting to be used in areas such as health care and the justice system. But algorithms rely on the data and instructions we give them. And they could become so complicated that we no longer understand or control them. In fact, most experts agree that finding a way for humans and machines to work together is one of the most important problems to be solved in the decades to come.
How accurately can we predict weather patterns?
Patterns also allow us to make predictions. For example, humans use data, science, and pattern recognition skills to make predictions about the weather. Weather forecasts not only help us make our personal plans, they're important for agriculture, and the running of our transportation networks. Or they can warn us of severe and potentially devastating weather events. Weather forecasting has become incredibly sophisticated, combining human expertise with cutting-edge technology. But the Earth's atmosphere is so chaotic and fast-changing that they can't always get it right.
How can we change patterns of behavior?
There are patterns much closer to home that we also need to pay attention to – our patterns of behavior. We are all creatures of habit and that has important advantages. Not least, it reduces the number of decisions we need to make every day. But we need to use conscious strategies to make sure that we're forming healthy and productive habits, rather than destructive ones.
How do we use graphs to visualize patterns?
Patterns in data are much easier to identify when we can visualize them. By creating graphs and charts, we can take complex, abstract data and make it meaningful, helping us to identify important trends and relationships. Patterns give meaning to our world. They help us understand the past, the present, and the future. How do you use patterns in your life?

Unit 4, page 37, exercises 4 and 5 Factflix VIDEO

Tom Hi everyone, and welcome to Factflix! I'm Tom.
Sara And I'm Sara. Ugh! Life is so unfair!
Tom What's wrong?
Sara I didn't get a ticket to the Jamjar concert, and now they're all sold out!
Tom Pff, it's not the end of the world. It's just a concert.
Sara It's not just a concert, Tom – it's a Jamjar concert! I'm so annoyed! Why didn't I buy it yesterday! But OK, I know what you're saying. I should keep things in perspective. It's nothing compared to the real problems a lot of people have.
Tom And that brings us to today's question: "What's the best way to deal with problems?"
Tom For your problem, I'd say "don't make a mountain out of a molehill." Sure, you'll miss a concert – a Jamjar concert – but it's really no big deal. Why didn't you get a ticket anyway? I thought you were going to get one yesterday, after school.
Sara I was, but my bike chain broke and by the time I'd walked home there were no tickets left!
Tom I told you a long time ago there was a problem with that bike chain! You should have taken it to the bike shop earlier. A stitch in time saves nine, you know.
Sara No, I really don't know. Saves nine what?
Tom Nine stitches. So, if you have a hole in your sweater, you should mend it by sewing one stitch now. That way it won't get bigger and need nine stitches later. It's about acting promptly, dealing with the problem now, before it gets worse.
Sara Oh , OK. I get it. But don't worry, Jamjar is live streaming the gig, so I'm going to invite friends over and have a party at my house! You know what they say: "when life gives you lemons, make lemonade!"
Tom Yes! It's all about transforming adversity into opportunity, right?
Sara Exactly!
Tom Bubble wrap is a good example of that. Its two inventors tried to sell it as a kind of 3D plastic wallpaper, but the problem was, no one was interested. It was only when they thought, "Is there any way we can sell it as something else?" that they realized it was a great packaging material.
Sara That's a cool story. It also fits the saying, "Two heads are better than one." The two inventors might not have solved the problem if they hadn't collaborated. Collaboration is often key to problem solving, especially in science. There was a space probe from Earth recently that landed on a comet! Solving all the problems involved in that needed collaboration between thousands of people from 50 organizations in 14 different countries!
Sara But sometimes breakthroughs are the result of one person being persistent and not giving up. Apparently, Thomas Edison tried 1,000 different ideas for an electric light bulb before he found the one that really worked! If at first you don't succeed, try, try again!
Sara But sometimes there's nothing to be done about a problem, and you just have to be philosophical and accept it. Like, bad weather, for example. As the saying goes, "What cannot be cured must be endured."
Tom That's very true. I've finally accepted that you can't be cured of your terrible taste in music. I'll just have to endure listening to Jamjar when I'm with you!
Sara So rude! Well, bye everyone
Tom See you next time.

Unit 4, pages 42 and 43, exercises 4 and 5 1.10

It isn't easy to solve problems. Sometimes, the more we reflect on them, the more unsolvable they seem to become. But interestingly, psychologists have come to the conclusion that, again and again, it's the same few things that stop us from finding the perfect solution. We're going to look at those obstacles today.
The first big obstacle to finding the best solution is our subconscious preference for methods that have worked for us in the past. This can make us blind to more effective methods, so it's important to try and think outside the box. To demonstrate this, I gave you the 5+5+5+5 puzzle earlier. Did anyone think up a solution that worked? OK, a couple of you. Great job! The reason this one's so hard is that you see math symbols and want to think mathematically. After all, years of math lessons have taught you good mathematical methods that work well for you. But actually, in this case you need to change your perspective and think about the symbols you're seeing in a more abstract way. A plus sign, with one little line added, can be turned into … a 4. Then you have 545+5+5, which does indeed equal 555.
The second thing that often stops us from finding solutions is that we think of objects according to the function they were designed for, not for all the potential things they could be used for. A chair, for example, can be used not only for sitting on, but also for drying clothes, for standing on to reach high objects, to give you balance when you're practicing ballet, and so on. For the puzzle question I gave you about the chalk, the most satisfying solution requires you to think outside the box about the chalk's function. We usually use it to draw or write with. But imagine throwing that piece of chalk into a lake, like any stone you might find on the ground. Can you visualize the circles of ripples that come from the point where it hit the water? They might easily reach 15 meters in size.
Third on the list of problem-solving obstacles is the fact that we often limit our options unnecessarily. For example, let's look at the question I gave you with the nine dots. Most people puzzle over this one for a long time but, even with a lot of persistence, trial and error gets them nowhere. And that's because they make the assumption that the four lines can't go outside the square of dots. That light bulb moment only comes when they realize that they have to think outside the box – quite literally. Try drawing your first line straight down through the dots on the left – A, D, and G – and continuing it beyond the bottom dot to an imaginary fourth dot. Now draw a line from there diagonally up and right, through H and F, to another imaginary dot. The third line goes through C, B, and A, and the fourth line through A, E, and I. You should have an arrow shape.
The fourth issue that people often have is the difficulty of deciding which information is relevant to the problem, and which isn't. Take that question about Lala, Lele, and so on. I expect you figured it out in the end. But how many of you thought about the letters in the girls' names and looked for a pattern before you came to the conclusion that their names were irrelevant? Because of course the fifth daughter's name has to be Mary.
So, those are four of the most common issues that stop us from finding effective solutions. Now that you know what to watch out for, you may find that problem solving becomes a little easier.

Unit 4, page 45, exercises 2 and 4 Reflect VIDEO

How do we solve problems?

What's the best way to deal with problems?

"Hope for the best, prepare for the worst." This is useful advice for dealing with problems. Of course, we can't always predict the problems we'll have to face, but some aren't so hard to imagine. Got to get to the airport? Then give yourself plenty of time, so if you miss your bus, it isn't such a big deal. If you plan for the worst, you're ready for anything!

What unintended consequences can solutions bring?

Our world is a complex place, and any change has many consequences. When humans learned to control fire, we were able to survive in colder climates and cook our food. Experts argue that cooking our food provided extra nutrition in our diets. But even controlled fires can have unintended consequences.

We now rely on technology to solve a lot of our problems. But technological solutions can bring unintended consequences too. For example, automation has brought cheaper goods, but it has also taken away jobs.

How can we make travel more accessible for everyone?

Planners and architects need to think carefully when designing an environment so that it's accessible to as many people as possible, and technology can help. In the city of Seattle in the United States, people with limited mobility can use an app called "Access Map" to get directions. It can suggest routes to avoid steep hills, or barriers such as steps and raised curbs. And new technology at a train station in Melbourne, Australia, uses computer-generated speech to give visually-impaired people detailed directions on their smartphones via an app called BlindSquare.

How can we become good problem solvers?

Groups can solve problems more effectively if the people in a group have different backgrounds and different ways of thinking. Imagine a group of ten people. Each person has to come up with two ideas. If everyone's brain works in the same way, they will come up with ideas similar to each other's. But if those ten people are diverse, there will be a lot of different ideas, so there is more chance that one of the ideas will be successful.

What can governments do to solve problems?

Governments can tackle problems by passing laws and providing money to fund projects and policies. But it isn't always easy to choose the best course of action. When the government of Victoria, Australia, passed a law to make all bike riders wear helmets, they hoped to reduce the number of serious injuries. Instead, the data suggests that injuries increased, because people in helmets felt that they could safely take more risks.

Solving big problems is rarely simple!

Project, page 47, exercises 2 and 3 1.11

Group 1

Diego I'm really excited by this project, I have a lot of ideas.
Hassan Yeah, this is a good one, and we have an excellent team!
Maria OK. Just read it again… what are the key points?
Diego Natural patterns. Designs in nature. Something eco and green, and beautiful.
Hassan OK, talk to me about natural design and shapes. What sort of ideas do you have?
Diego Plants – petals, leaves, shapes of trees.
Hassan I like this, yeah… so symmetrical flower shapes, uh, branches, wood grain?
Diego Yeah, branches is a good one, the way trees and bushes grow … a lot of off-shoots, branching off.
Maria This could be really good for a tall structure, I don't know, like a skyscraper or something.
Diego Oh hang on, but what about a really beautiful low rise building, not a skyscraper … I don't know, something like a hotel, but it looks like a tree if you saw it from above – so all the different parts of the hotel are different parts of the tree.
Maria Oh, you mean like a palm tree shape or something?
Diego Yes, so the branches of the tree go to different parts of the hotel – the pool, the reception, the restaurant, the rooms.
Hassan Yes! I like that more than the skyscraper idea. Let's do something really ecological and sympathetic to the surroundings.
Maria Yeah, that's gonna be amazing. I think this is … .

Group 2

Heidi Oh this could be a pretty hard challenge. I think there are a lot of things to do here.
Rafael Yes, you're right. I'm not sure about "natural patterns" to be honest. What does that even mean?
Daisy What about animal patterns, you know like camouflage things?
Rafael Oh OK, so like zebra stripes or tiger spots, or things like that?
Heidi Hmm, yeah well, I don't think I want to design a spotty building though.
Daisy Plants are probably easier.
Rafael Or water? Waves, ripples, droplets?
Daisy Droplets could be good – nice shape.
Heidi Maybe we should think about the building we want to design.
Rafael Could it be something that is based around the shape of water? What about an art gallery, or a surf school, or something that draws inspiration from the sea or a waterfall?
Daisy Cool, that'd be really good. I think maybe … .

Group 3

Silvia Let's think about mathematical patterns in nature to start with then.
Rosa OK. Um, beehives – you know, honeycombs.
Liam Yes … um … things that repeat, things that are symmetrical, things that fit together, things that tesselate.
Silvia Oh, oh, snowflakes!
Rosa Um, spider houses – uh what are they – oh, cobwebs!
Liam Beautiful shells.
Silvia Shells are good, shells have stripes, and they have spirals.
Liam Spirals are everywhere in nature, you can see fractals in shells, and in the center of flowers, and in things like pine cones.
Silvia Yep, super.
Liam Are we talking about the Fibonacci sequence?
Silvia Yes, we are!
Rosa Yes, that's a really nice idea – fractals and spirals and really cool mathematical shapes!
Liam We could make a really beautiful design for something like a hospital or an elder care facility.
Silvia A place to take care of people? Nice idea.

Unit 5, page 49, exercises 3 and 4 Factflix VIDEO

Sara Hey guys! It's Factflix, with me, Sara.
Tom And me, Tom! Today's question is - "What influences our buying decisions?"
Sara And why do you look so happy, Tom?
Tom I just bought new sneakers online and they're arriving tomorrow. They're my favorite brand. You've probably seen them advertised on TV. You must know the jingle. Dah, do, do, do, do, do.
Sara Er … no.
Tom What about the slogan – "Do it now"?
Sara Sorry Tom!
Tom Anyway, I was browsing some of the sales and discounts online. I wasn't planning on buying anything but then I found a mega bargain. My favorite sneakers with ten percent off, so only $260! And I had just gotten money for my birthday, too. I just had to get them.
Sara $260?! That's not my idea of a bargain, Tom. That sounds like an impulse purchase. Personally, I'd choose a cheaper brand! But I know there are a lot of different things that influence our own buying habits. Some of us believe what companies tell us in their ads. You know, that their brand is special, or the best on the market. Other people are a little more careful, even if they're really wealthy. Did you know that billionaire oil tycoon John Paul Getty had a reputation for thriftiness? He even had a payphone for guests when they stayed in his mansion. He hated losing money!
Tom And looking at this study, he's not alone! About 24% of people are like this – they're called thrifty buyers. They have a lot of self-control, and strong "buyer's remorse," so after they've bought something, they usually feel really bad. And only 15% of the population are impulse buyers, like me. They get excited when they buy something, and experience little or no regret at all. According to a study of college students, people who are used to dealing with numbers and facts, like science and engineering students, were more likely to be thrifty buyers than people who study the arts, for example.
Sara But it says that 61% of people are average buyers, like me. We're not as emotional as the other types. That's why companies use different sales techniques – they're trying to target different types of buyer. So, data, charts, and graphs can convince reluctant buyers that they're getting a good deal.
Tom For brand-oriented buyers like me, ads focus on pleasure – they don't focus on price, but the promise of enjoyment.
Sara And for data-driven buyers like me, they focus on information! But strangely enough, most people don't weigh the benefits and drawbacks of a product before they buy. If you think about it, we don't really need many of the things we have. We buy them because of peer pressure, the desire to feel part of a group, and have social status.
Tom Now that I think about it, my friends Jake and Noah do have exactly the same sneakers. So, seeing my friends with stuff does convince me to buy it! What can I say, I like to have what's in!
Sara And you're happy to pay more for the latest products and the most fashionable logos. A lot more. I, on the other hand, don't like spending money. If I decided I really needed something expensive, I'd save up for it.
Tom So, you're telling me you're stingy?
Sara Er, no. I'm sensible. I'm not an emotional buyer, like you!
Tom That's fair. Bye everyone!
Sara See you next time!

Unit 5, page 54, exercises 2 and 3 1.13

Presenter We've all been there: while scrolling through our favorite newsfeed or social media site, the same ads keep popping up again and again. The strange thing is that you'd just been searching online for a similar product.

Coincidence? No. The fact is that our online activity is easy to track, and websites, internet providers, and social media sites are all doing it: collecting personal information, then using it to give us personalized advertisements. Today in the studio we have IT expert Anna Jacobs who's going to give us some information and advice about internet security. Welcome, Anna.
Anna Thank you. Well, companies say they collect data about people to improve customer experience, so they need to know about your shopping habits and lifestyle. That's not necessarily a bad thing. In a recent survey, 31% of consumers said they wanted a more personalized shopping experience.
Presenter So on the one hand, some customers want more personalization, but on the other hand, there's concern about online privacy, right?
Anna That's right.
Presenter So how is data collected?
Anna In many ways, and often people are unaware of it. Look at the phone apps and online games that children and teenagers use. Companies might ask kids to do a survey or quiz before playing a game or using an app, with the chance of winning a prize. My advice is don't do these types of quizzes if you want to protect your privacy.
Presenter OK, but what about cookies? What are they and how do they work?
Anna Cookies are small text files that are downloaded to your smartphone or computer when you visit a site. You can choose to accept or decline cookies, but they can be useful. They tell the site when you have returned so that your shopping preferences and any items in your shopping basket are always there. Most cookies don't have viruses and they cannot install malware, and the information they collect is usually encrypted. But there are also third-party cookies.
Presenter Can you explain?
Anna Imagine this: you visit a music webzine and after browsing the content, you click on a banner ad from a sportswear company. When you load the ad onto your computer screen, you are giving it permission to put a third-party cookie onto your computer. The third-party cookie collects information about your browsing habits, and when you visit another site with the same ad, the company opens the cookie to see where you've been.
Presenter So third-party cookies can track your activity across many different sites?
Anna Exactly, and they can sell that information to other companies – that's why you get pop-up ads for products you might be interested in on other sites. But you can block these cookies in your browser's settings. However, there are cookies that are not so easy to spot or block.
Presenter Which are … ?
Anna Flash cookies and zombie cookies. Flash cookies are downloaded when you visit a site that uses Adobe Flash. They are super cookies that can access your location, your photos, and even your messages, and can be permanently stored on your computer. And zombie cookies keep on coming back even when you delete them. Your only option is to use antivirus software to get rid of them.
Presenter OK. Is anyone else out there tracking us?
Anna Well, internet providers also collect information. They know about your browsing history and the posts you share on social media.
Presenter Can't we just delete our browsing history?
Anna You can, but it won't work. They'll still have the information. However, there are private search engines that are designed to keep your searches secure, private, and free from trackers.
Presenter And what about social media sites?
Anna Social media sites have access to a massive amount of data. They do have privacy policies, so make sure you check them and decline if you're worried about how your information will be used.
Presenter Any last words of advice?
Anna Information has value, just like money. Think about who gets that information, how it's collected, and what it's used for. Always think twice before you click "OK" or "Accept" to an app or a website using your personal information.

Unit 5, page 57, exercises 2 and 4 Reflect VIDEO

How does advertising work?
What influences our buying decisions?
Whatever product you want to buy, there is a lot of choice out there. But how much do brand names influence our decisions? Some years ago, researchers tested the power of brand recognition with a group of children. Each child was given two identical servings of fast food in paper bags. One bag was labeled with a famous fast food logo, and the other bag was plain. The results were surprising: 77% of children said the fries tasted better in the bag with the logo on it. But the food was exactly the same! This is the power of a strong brand.
What is the science of selling?
The science of selling can involve explicit forms of advertising, but sometimes the message is communicated in more subtle ways. Some products are advertised through product placement. This happens when a product is advertised in the context of a movie, TV show, or music video. The product or service is presented in a way that will create positive feelings towards the brand. It might not feel like advertising, but it is, and it works!
Is advertising always ethical?
Ethical advertising aims to promote a product or service responsibly. Ethical companies can reach out to customers by promoting good causes. A 2015 report revealed that 92% of U.S. millennials are more likely to buy a product from an ethical company. Of course, not all advertising is ethical. Advertisers often emphasize the positive aspects of their product but leave out any information that might negatively affect their sales. Advertising directly to children can also be considered unethical, especially advertisements for candy and junk food, which are potentially harmful. So, we all need to be smart consumers. Think about what the ad is saying and what it might be leaving out.
How can we deal with online advertising?
These days most companies use internet advertising such as banners, pop-up ads, and email marketing. But how can we deal with these ads? First of all, never just allow cookies. Only allow the ones that are necessary so that third parties can't follow you online. Secondly, go to your browser and activate the pop-up blocker utility. Finally, download an ad-blocking program. Some may charge a small fee. But it's worth it for ad-free surfing!
How can we be persuasive?
When companies advertise a product or service, they use persuasive techniques that appeal to their target audience, such as clear language and appealing visuals, sales, or a positive review of the product – nothing is more persuasive than having great customer feedback!
So, look at the advertisements around you. How are they persuading you to buy?

Unit 6, page 59, exercises 3 and 4 Factflix VIDEO

Tom Hi everybody, and welcome to this week's show. I'm Tom.
Sara And I'm Sara.
Tom Today we're asking the question "How many friends can we have?" So, Sara, how many friends do you have?
Sara Let me see … er, according to social media, right now I have exactly 1,437 friends.
Tom Yeah, but how many of those people are actually friends? You know, like people you spend time with?
Sara I don't know. Good question. Maybe around one hundred, or 120?
Tom Interesting. That's not far off Dunbar's number.
Tom Professor Robin Dunbar argued that none of us can deal with more than 150 meaningful relationships at a time. You know, a friendship where there's some level of trust and where you'd help each other out if either of you needed it. The rest of the people we know are probably acquaintances. That's someone you've met but don't really know. According to Dunbar, it's possible for each person to have about 500 acquaintances.
Sara This is really interesting! I'm just checking out Professor Dunbar now. He says that we all have layers of friendships. The outer layers are larger but the quality of the relationships is worse. The smallest layer is an inner circle of about five of your closest friends. These are your loved ones, like family members and best friends, and they form your support clique. You have a strong emotional attachment to this special group of people.
Sara Then there's a circle of 15 close friends, including the people from your support clique. They may act as confidants in your life – you trust them enough that you share most of your secrets or feelings, and they give you sympathy in return. As you go outwards, the total for each layer includes the total of the previous layer. After the close friends, there's a layer of 50 friends, and then the famous layer of 150 casual friends. Together, these are the meaningful contacts in your life. They are close enough that you would invite them to a party but you might not share all your secrets or feelings with them.
Tom To Dunbar, who's a professor of anthropology, it's all to do with the size of our brains. Intelligent apes have larger social groups. As part of this group, humans are very intelligent, so we can cope with large social communities – about 150 people. He then found that most villages in Britain before the 19th century had about 150 people in them. The same goes for certain communities in the U.S., like the Amish and the Hutterites. Dunbar believes that this is because a population of 150 means that everyone feels a strong connection with each other and usually acts in the best interests of the community as a whole. When a population becomes bigger than 150, it becomes harder to manage. That's when you start to need formal laws, and police, and things like that.
Sara Interesting. But most of the time, it's not laws that influence the way we behave, is it? It's our social network. If you hang out a lot with selfless people, your instinct will probably be to behave selflessly. And if most of the people you know are selfish, you'll probably be the same.
Tom True.
Sara And I'm still not sure about the number 150. My friend is a total social butterfly with way more friends than that.
Tom It's only an average! And anyway, you might find your friend has a large social network but only a small number of close friends.
Sara Well, I think it's good to have friends. You know, people who socialize regularly are likely to have lower blood pressure. That helps them avoid things like heart attacks. Friends are good for your health!
Tom I completely agree!

Sara Good. So … shall we start socializing?!
Tom Good plan! Bye everyone!
Sara See you!

Unit 6, page 65, exercise 3 2.02

Today, I'm going to talk about friendships. After a quick look at why your choice of friends matters, I'm going to examine the traits of a true friend, and of a frenemy, and give some tips on what to do when friendships go wrong.
So, why does your choice of friends matter? Because the people you hang out with make you who you are. Your family is a big influence, of course, particularly in your early years. But increasingly, as you grow up, it's your friends who influence you. The great news is, you can choose your friends. But the bad news is, not everyone makes the right choices. Sometimes the people you think of as friends are actually frenemies.
So, what's a true friend? It's someone who's interested in what's going on in your life, and who's a shoulder to cry on when you need it most. They don't necessarily share your hobbies and interests, but they don't look down on them either. They don't necessarily agree with you on everything, but they respect your opinions. In short, they accept you as you are.
That doesn't mean they never criticize you. A good friend's job is to help you to become the best person you can be. And sometimes that might involve them telling it to you straight. After all, if a good friend can't tell you when you're making a big mistake, who can? But they would always do this kindly, and in private. If someone you think of as a friend is forever criticizing you and putting you down in front of other people, this person may be more of a frenemy than a friend.
So, what other frenemy signs are there to look out for? Humor is one. If their jokes make you laugh, great. But if their jokes often hurt your feelings, and they then accuse you of having no sense of humor when they see that you're upset, think twice about keeping this person close to you – it's classic frenemy behavior.
Do you have friends who encourage you to do things that you know are wrong? That could be seen as frenemy behavior, too. Other examples: they might ignore you when you're in a group, even though they're great company when it's just the two of you. Or they might encourage you to confide your secrets in them, and then tell people you hardly know. At worst, they might just pretend to be your friend in order to get something they want.
And what do you do if you've noticed some frenemy behavior in your friend? First, remember that none of us is perfect! There's a scale between true friend and frenemy, and most people are somewhere in the middle. Talk to your friend, and explain how their behavior makes you feel. If they apologize and try to change, don't give up on them – they're a friend who's made a mistake, and we all make those. On the other hand, they may see the situation a bit differently from you, so listen carefully to their point of view, and be prepared to make changes yourself if you've made mistakes. After all, being a good friend yourself is the best way to earn good friends. But if you have someone in your life who doesn't take your feelings seriously, and who regularly makes you feel uncomfortable or anxious, it might be time to distance yourself from them. Find other people to hang out with instead. Frenemies can really get you down and undermine your self-confidence. Choose to spend your time with more positive people!

Unit 6, page 67, exercises 2 and 4 Reflect VIDEO

Why do we need other people?
How many friends can we have?
We have friends for all sorts of reasons. They can make us laugh, make our troubles seem more bearable, or comfort us when we're down. Professor Robin Dunbar said that on average the human brain can cope with about 150 meaningful social relationships, but only five of these people will be really close friends. The important thing is to have enough friends throughout life to feel happy and supported. But remember, friendship goes two ways. It's about supporting your friends as much as they support you.
Why do some people avoid society?
People may decide to avoid society for all kinds of reasons. Maybe out of shame or humiliation because of something they've done or perhaps out of fear of failure or embarrassment. More positive reasons include a desire to be with nature and the wilderness or to avoid distractions in order to get a job done. Many people feel more creative when they're alone.
How does social media affect us?
Social media connects us, informs us, and entertains us, or it can provide company when we're feeling lonely. But communication on social media has its problems. People can't be seen when they communicate, which means they may write things that they wouldn't normally. And you can't read their facial expressions or hear their tone of voice, so misunderstandings can occur. So, before you share anything, take care to avoid upsetting people. And if you ever become the target of online bullying, don't be afraid to talk to someone about it or report it.
What makes a good friend?
Good friends like you for who you are. They celebrate your successes, even when they haven't been successful themselves. And they give you support, even when you've made stupid mistakes. If a friendship leads to problems more than happiness, it may be time to end it. The person may be more of a frenemy than a friend. But a good friendship is something to treasure. All of us want good friends, but the best way to have one is to be one.
How sociable should we be?
Everyone's needs for human contact are different. Some people are extroverted and get their energy from socializing. And some people are introverted. They enjoy being alone and only occasionally need interaction with others.
Some people worry that social media is negatively affecting the amount of face-to-face time we get with the people in our social network. But recent studies suggest that this isn't the case. In spite of the options on social media, meeting people face-to-face remains just as popular as it ever was.

Project, pages 68 and 69, exercises 2 and 3 2.03

Group 1
Martin OK, so what do we want the theme of our campaign to be? Any thoughts?
James It's got to be something we can design a poster around.
Martin Or make a video. We could act out a drama or a scene, maybe make a short movie?
James Nice idea. But we still need a good theme first. We're promoting mental health and well-being in teenagers, but how?
Elena I'd like to keep it positive. Not something depressing like anti-bullying.
James Yeah, but that really does affect teenagers.
Elena Well, I don't know, maybe a "support your friends" campaign?
Martin Good idea. That would give us a more positive message to work with. I like that.
James Or what about something around body positivity or self-esteem?
Elena How about a "be yourself" campaign?!
James Yeah, everyone is different … and that's OK!
Martin We could have headshots of different faces in our movie.
Elena Or it could be a poster. We could have a teenager looking really happy and confident. It could help teenagers who are getting bullied and depressed, without directly making it about bullying. We'd be coming at it from a different angle.
Martin I like it. It's really great … .
Group 2
Sarah How do you guys cope with stress, because I know I'm like stressed all the time.
Paul Mmm, yeah, I play sports.
Arlo Yeah, for me playing volleyball is awesome, you know you get outside, see your teammates, move around.
Olivia OK, maybe "Get active" is a good theme – that helps physical and mental health. So we could do something about sports for our campaign, do you think?
Paul Not just sports, maybe "Do something you're good at"?
Sarah Nah, I don't like that so much. When I'm stressed out, I don't want to do things, I just want to take a break.
Paul Or sleep. It's important to get enough sleep. That's good for stress.
Sarah Yeah, or just stop what you're doing or, you know, just take time out.
Paul Oh, OK, I like this. So you take five.
Arlo Yes.
Olivia Does anyone use one of those meditation apps? You know to help you meditate, help you relax?
Sarah No.
Paul No, I don't.
Arlo Me neither, but I do do yoga.
Olivia Oh that's really good. Could our campaign look at ways to take a break?
Sarah Yes, I like the "take time for yourself" focus. It's a strong message … .
Group 3
Rosa Sometimes it's good for your mental health if you do something kind for someone else.
Isabella True, but what do you suggest teenagers do? Charity work?
Rosa Maybe. Or maybe just something simple like looking out for their friends more actively.
Logan Yes, actually it can be really hard to talk to your parents or a teacher if you're worried about something.
Isabella True.
Logan But if you can talk to a friend, I'm sure that's really good for your mental health.
Rosa OK, so maybe a campaign about supporting your friends – something simple like just asking them how they are.
Logan That's good for the mental health of both people. I think we're on to something here.

Unit 7, page 71, exercises 3 and 4 Factflix VIDEO

Sara Hi guys and welcome to Factflix! It's me Sara.
Tom And me Tom. Today's question is: "What do we know about space?"
Sara If you ask me, we don't know a lot. But our knowledge has improved.
Sara People used to think that Earth was the center of the universe, until Galileo invented the telescope in 1609. Looking through it, he worked out that the planets in our solar system move around the sun. He was also one of the first people to look at the surface of the moon! He'd have been amazed by the fact that 360 years later, in 1969, people landed on it!
Tom Yes, we've achieved a lot, but there is still so much to discover about space. Nobody knows, for example, what dark matter is. Scientists are still investigating it. We believe it's there because of the gravitational effect that it seems to have, but we can't see it because it doesn't reflect light like ordinary matter. There's also the question of how time changes in black holes and how many exoplanets - that's planets similar to ours - there are out there. And what kind of life we might find on them! Space is the final frontier and humanity's biggest challenge. But it's difficult to find answers in such a hostile environment.
Sara Each Apollo mission cost over 450 million dollars. It's not easy to get into space and then once you're there, you have to deal with the lack of oxygen, zero gravity, and cosmic radiation. But is all this space exploration really worth it? Wouldn't it be better to use that money to help people on Earth?
Tom I'd argue that it's worth it. All these risks and challenges lead to innovation, which can help improve the lives of people on Earth.
Sara That's a good point.
Tom And have you considered that international space programs also bring people together? Just look at the International Space Station - 15 nations built it, and astronauts from many different countries work together there. Space gives us a common goal.
Sara Sure. Until countries start arguing about the resources they find! There could be billions of dollars' worth of natural resources on asteroids - and that could definitely be a source of conflict! But all things considered, I agree. If Earth can't support us anymore, we'll need to be an interplanetary species if we're going to survive.
Tom But hopefully space travel can help us avoid that, too! When astronauts first see Earth from space, they're often struck by how beautiful and fragile it looks. Maybe a greater knowledge of what's out there, will help us to value what we have here.
Sara I really hope so. Either way, it seems that space is our future. We need to explore the universe to realize just how lucky we are here on Earth! Until next time, everyone!
Sara Bye!

Unit 7, page 77, exercises 6 and 7 2.06

Picture the event: you are part of a team of three astronauts, traveling 360,000 kilometers above the surface of the Earth in a small spacecraft. The spacecraft is made up of a command module and a lunar module, and two of you are going to transfer to a lunar module to land on the moon, while the third astronaut stays in the command module and waits for your return. All is going according to plan, when suddenly you hear a loud bang: the command module starts to lose oxygen and all three of you have to transfer to the smaller lunar module. This part of the spacecraft is meant for two people and, inside, it's the size of a small car. But the lunar module has enough water, oxygen, and batteries for a few days, if you use your supplies carefully. But the big question is: how do you get back home?
On April 13, 1970, this is exactly what happened to the astronauts on board the Apollo 13 space mission. It was a desperate situation, so how did they handle it? Did they turn the situation around and find a solution? Or did they panic and lose their focus? What happened over the next few days was critical to saving the astronauts' lives, and teamwork was a big part of it.
As soon as the oxygen tank exploded, engineers at NASA immediately realized that the mission's objective had changed. They abandoned their plan of landing on the moon – their priority now was to get the astronauts back to Earth. They stepped up to the challenge and worked on a solution fast, using the checks and simulations that they needed. Experience had taught them to expect the worst and that one small mistake could end in disaster. Three years earlier, the entire crew of Apollo 1 had been killed when the spacecraft accidentally caught fire. No one wanted to repeat that experience. Everyone was focused on the same objective and determined to make it happen.
The astronauts move to the lunar module, but then an alarm goes off – the CO_2 levels in the smaller spacecraft are becoming dangerously high. With help from engineers on the ground, the astronauts take the lead and manage to improvise CO_2 absorbers with the materials they have available – plastic bags, cardboard, and some tape!
But the real challenge was just beginning. Because the spacecraft had been damaged, NASA flight controllers had to write and test new navigation procedures for the return home. This usually took three months, but engineers set an almost impossible goal to do it in three days. Teamwork helped them achieve that. NASA reacted quickly and decisively and didn't lose sight of its objective – to get the astronauts home.
Armed with the new navigation procedures, the astronauts start to align the spacecraft for re-entry into Earth's atmosphere. However, debris from the explosion is making it difficult to orient themselves by the stars. To make matters worse, they are flying in terrible conditions, suffering from lack of food and sleep, with very little power, and in very low temperatures. It is critical for them to remain calm and keep their nerve. They quickly change their plan again and use the sun to guide their re-entry into the Earth's atmosphere.
On Tuesday April 17, 1970, Apollo 13 splashed down safely in the Pacific. Mission accomplished!

Unit 7, page 79, exercises 2 and 4 Reflect VIDEO

Why are we fascinated by space?
What do we know about space?
Thanks to telescopes, space probes, and the International Space Station, we know more than ever about our solar system and beyond. But the more we discover about space, the more we realize what we don't know. Less than 5% of the universe is made up of ordinary matter. That is, planets, rocks, stars, animals, and so on. 27% of the universe is actually dark matter: a strange form of matter that produces no light. We cannot see it, but we can see its effects on light, so we're pretty sure it's there. The remaining 68% is dark energy. It's thought to be a force that affects the expansion of the universe, but other than that we have very little idea what exactly it is! But the mystery of space is what drives us to explore, discover, and create.
Why is science fiction important?
Many scientists acknowledge the part that science fiction has played in inspiring their inventions. One famous example is Arthur C. Clarke's description of radio signals bouncing off satellites for long-distance communication. So, what's next on the horizon? Keep a close eye on those science fiction books and movies to find out!
Does space exploration benefit humanity?
In 1962, President Kennedy made a famous speech supporting space exploration and promising to land on the moon. Seven years later and with the help of 400,000 people, NASA managed to send Apollo 11 to the moon. In order to do this, scientists had to invent all kinds of new technology. Many of the inventions first created for the mission to the moon are still used all over the world today!
What can space exploration teach us about teamwork?
Space is a harsh, isolated environment, so astronauts need to work together as a team. For example, astronauts Sunita Williams and Aki Hoshide spent six and a half hours working together outside the International Space Station to fix a power system. They even had to use an old toothbrush to clean a bolt when they didn't have the right tool! But thanks to their ingenuity and teamwork, the space station was repaired.
How can space inspire us?
From the 1950s until the 1970s, the NASA space programs inspired a whole generation of scientists and engineers. Today, a new idea called the Lunar Orbital Platform-Gateway, is being developed. The Gateway will orbit the moon and provide a base for further exploration of the moon. It is hoped that it will also prepare us for travel into deep space and possibly even a mission to Mars!

Unit 8, page 81, exercises 3 and 5 Factflix VIDEO

Sara Hi everyone and welcome back to Factflix. I'm Sara.
Tom And I'm Tom. Today, I have a puzzle for you. Ready? We can't see, hear, smell, touch, or taste it, but we spend our whole lives trying to acquire it. What is it?
Sara Oooh, that's a good one. I really don't know!
Tom And that's a clue. What did you just say?
Sara Er – "I don't … know"? Ah, I get it! Knowledge!
Tom That's it! Today we're discussing the question "Where does our knowledge come from?" So Sara, tell me something you know.
Sara That's a weird question! But OK. I know, I know that my sweater is red.
Tom But do you really know that? How can you be so sure that's true?
Sara Because I can see it!
Tom OK. So, we can acquire knowledge through our senses. But are our senses totally reliable? Look at Squares A and B in this picture. A is darker than B, right? But when you connect the two, you see that they're actually the same!
Sara No way! That's really interesting. You know, another way we know stuff is because we remember it happening. But we can't always trust our memory either.
Sara Did you know that psychologists believe that some of our childhood memories might be partly or even completely false? It's possible that events we think happened are actually imagined.
Tom And then there are facts. Of course, some sources of information are very unreliable, like conspiracy theories about the Earth being flat, for example. But there are facts from sources of authority that are just common knowledge. We know that we lose 80% of our body heat through our head. And we know that lightning never strikes in the same place twice.

Except that neither of those "facts" is actually true. Lightning is bound to strike the same place more than once at some point. I mean, the Empire State Building alone is struck by lightning between 25 and 100 times every year! And if we really lost 80% of our body heat through our heads, there would be no need for full winter clothing – just a thick hat would be enough!
Sara OK. OK. But we can't cast doubt on everything! We still have logical reasoning, don't we? Surely, we can take it for granted that 2 + 2 = 4. Right? Wrong! We can use reasoning to draw conclusions that are valid. But that doesn't mean those conclusions are true. It depends whether the argument is based on true premises. For example, 'I think lightning never strikes in the same place twice. Lightning has struck here before. Therefore, I won't get struck by lightning here.' The argument is logical but the first premise is wrong so the whole argument is!
Tom Nothing is beyond doubt! Do we know for a fact that we even exist?! For all we know, we could be fictional characters in someone else's imagination. Who's to say? I don't think we can rule it out. Is there any way that you can prove your existence?
Sara Maybe not. But in everyday life, we sometimes have to take things at face value or go with our gut instinct – or intuition – to just, you know, live!
Tom Very true. What we really need to know is when to call things into question and examine the evidence and when to keep an open mind and accept that there's no way of knowing for sure.
Sara But how do we know that?
Tom Very good question! See you next time, guys.
Sara Bye!

Unit 8, page 87, exercise 5 2.08

Has everyone got a seat? OK, great. Well, thanks everyone for coming to my talk today. It's going to be a short talk, but I hope you'll find it interesting. So, what I'm going to talk about today are arguably two of the most important ingredients in learning: confidence and humility. I think we all know that both of these qualities are important, but it can be difficult to figure out how we can be both confident and humble at the same time. We tend to think of them as opposites a lot of the time. Anyway, in this talk, I'm going to explain why I think confidence and humility can go hand in hand.
I've divided the talk into four parts.
First of all, I'm going to look briefly at why we need confidence in order to learn and achieve our goals. This will probably be fairly obvious, but it still seems worth saying.
In the second part of the talk, I'm going to talk about intellectual humility. Intellectual humility is the ability to admit what we don't know – to realize that we'll sometimes make mistakes and get things wrong. I'm going to explain why this is just as important as confidence.
In the third part of the talk, I'm going to try to explain how I think we can be confident and humble at the same time and why we shouldn't see these qualities as being opposites.
Finally, in the fourth and final part of the talk, I want to introduce a few ways that we can practice intellectual humility in our own lives.
OK, so let's get started shall we?

Unit 8, page 87, exercise 6 2.09

Part 1
OK. So, confidence is important, right? Well, the scientist Marie Curie certainly thought so. She's quoted as saying the following: "We must have perseverance and above all confidence in ourselves. We must believe that we are gifted at something."
I think it's pretty clear that we need to have confidence in our knowledge and abilities. And who better than Marie Curie to illustrate what can be achieved with enough confidence? She discovered two new chemical elements, won a Nobel Prize, and became one of the most famous scientists of her time. And it wasn't only self-doubt that Curie had to overcome – she also had to overcome the doubts of other people. Few women even had the opportunity to study science at that time, especially women like Curie, who didn't come from a wealthy background. So we need to be confident for two reasons. Firstly, we need confidence to motivate ourselves. We need to believe that we're capable of achieving our goals. And secondly, when we show other people that we're confident, they're more likely to trust us and believe that we know what we're doing.
However, there's a problem. If learning were only a matter of being confident, then you'd expect the most knowledgeable people to also have the most confidence. Yet, very often, that isn't the case. Maybe you've had this experience – I know I have. The more you learn about a subject, the more you ignorant you feel. It can be a bit disappointing and overwhelming sometimes, but in fact, it's a positive and normal aspect of learning. If we really want to make progress in anything, we have to be prepared to accept that there's a lot to learn and that we'll make mistakes along the way.

Part 2
And that brings me to the second part of my talk: intellectual humility. Intellectual humility is a way of thinking that involves understanding the limits of our knowledge. People with intellectual humility are aware that they might be wrong and they are curious about what they don't know. They're self-aware and able to question their own thinking, they're open-minded and good at listening actively to other people's points of view, and they're flexible and willing to change their minds if necessary. Instead of getting defensive when they come across something they don't know, intellectually humble people are happy to admit it – both to themselves and to others.
Psychologists argue that intellectual humility makes us not only better learners but also better communicators. It makes us open to different people's points of view and better at resolving disagreements. Employers seem to be realizing the importance of intellectual humility, too. A senior manager at Google recently said that it's one of the top qualities he looks for at job interviews.
I believe that intellectual humility is really important for us all, both as individuals and as a society. As individuals, we need humility if we want to learn and work effectively with other people. And I believe it's important for our society that people in positions of power are aware of what they don't know. Otherwise, how can they make informed decisions and resolve conflicts?
Part 3
So, moving on to the third part of the talk, I want to make the point that intellectual humility is not the opposite of confidence. It has nothing to do with a lack of self-esteem. It doesn't mean always assuming that you're wrong or giving in every time someone challenges your ideas. Instead, it means paying attention to the evidence and deciding whether you really have enough information. I'd say that you need quite a lot of confidence to be able to do this. You need confidence to admit that you don't know something. You need confidence to change your mind. And you need confidence to learn and fill the gaps in your knowledge.
So what is the opposite of intellectual humility? I would say arrogance – the assumption that you're always right and have nothing more to learn. And stubbornness – being determined to stick to your opinion even when the evidence is clearly against you. These qualities may sometimes look like confidence on the surface, but they really get in the way of learning.
Part 4
We just have a few minutes left, so in this final part of the talk, I want to look at some practical ways that you can develop an intellectually humble mindset. Anyone can learn to think in this way. Like so many things, it's a question of getting into the right habits.
OK, so tip number one: practice active listening. The next time you talk to someone, make sure you really listen to what they're saying. Ask them questions and try to understand the point they're making. All too often, we pay more attention to our own ideas than to those of other people. Listen carefully and you might just learn something interesting.
Tip number two: question your own opinions and ideas. Ask yourself, "What do I know about this topic or issue?", "How do I know this?", and "What don't I know?"
And tip number three: learn how to admit that you're wrong. It doesn't have to be humiliating if you do it confidently. The key is not to get defensive. Instead, show curiosity about what you need to learn. You can say something like "That's a really interesting question. I don't know the answer, but I'm definitely going to find out."
So that brings me to the end of my talk. It isn't easy to cultivate intellectual humility. But I believe that it's worth trying if it can make us better learners and help us to get along with each other. Ultimately, we all have a choice to make: do we simply want to look knowledgeable or do we genuinely want to seek the truth?
Does anyone have any questions? Yes, … .

Unit 8, page 89, exercises 2 and 4 Reflect VIDEO

What do we know?
Where does our knowledge come from?
Our thirst for knowledge is one of the things that makes us human.
We spend huge amounts of time, effort, and money trying to acquire knowledge and keep hold of it. We acquire knowledge in many ways: from direct experience and observation of the world around us – through our senses, by using our memory, and from other people – whether in person, or via books, the internet, and other kinds of media. But which sources of knowledge can we trust? Which can't we trust? And how do we tell the difference?
Why can't we agree on what's true?
Thanks to technology, it's easier to acquire and share knowledge than ever before. So why do people see the world so differently? Perhaps because our mind plays tricks on us so that the world seems to make sense. We call these cognitive biases. They determine what information we pay attention

to, and ignore. Over time, they become our reality – a reality that may be very different from other people.

What do we know when we're born?

From the moment we're born, we're acquiring knowledge about the world around us. But are babies really born knowing nothing about the world? Is some knowledge part of our biology or learned from experience in the womb? Scientists are discovering that babies may be born with more knowledge than we once thought. Knowledge about physical objects and patterns, and even about math and language.

Why is it important to know what we don't know?

In a world that values confidence, it isn't always easy to admit what we don't know. But identifying the gaps in our knowledge is crucial for learning. Awareness of our intellectual limits can help us to learn more effectively, resolve conflicts, and work constructively with others.

What kinds of knowledge do we need?

We may take it for granted that some kinds of knowledge are more useful than others, like science or technology, for example. But what would happen if no one studied philosophy, or history, or art, literature, or music? The amount of human knowledge is vast and modern civilization needs all of it.

Project, page 90, exercise 2 2.10

David Why we should spend the money on space exploration

In my view, space exploration is really important: we improve technology, create jobs, and work with other nations because of it. For example, the International Space Station really is international, as many countries worked together to build it, and astronauts from across the world use it to live on in space and share their knowledge. The advances we make in space exploration continually give rise to a huge number of advances in technology, which are now commonplace in everyday life: from freeze-dried food to memory foam, satellites, and artificial limbs. And let's consider our future options. One day, we might not be able to live on planet Earth any longer. That's really scary. I think it's important to continue funding missions to other planets so that we can find out if they have the resources to support human life. For instance, in 2003, two rovers were sent to Mars by NASA to look for signs of water and life, and we are learning more about the planet and its chemistry all the time because of them. Somehow, I don't think we are going to end up living under the sea! To sum up, spending money on space exploration is essential for the future of the human race.

Emi Why we should spend the money on deep sea exploration.

It is a well-known fact, not just by oceanographers and environmentalists but by the general public at large, that we need healthy oceans in order to have a healthy planet. It is astonishing to realize, then, just how little we know about our vast and beautiful oceans. In particular, the deep waters of the seas are a mystery to us: oceanographers have only mapped a tiny percentage of the ocean floor, and we understand very little of what lies in the deep trenches and canyons of the abyss. There are undiscovered plants and animal life, and creatures we know little about. Exploration of the deep could help us to understand, and therefore find ways to protect, our world better. For example, fairly recently, cameras that were sent to the ocean trenches managed to film a giant squid for the first time in its natural environment. Who knows what other undiscovered species, both plants and animal life, lie in the depths of the seas, and what benefits they could bring to humankind? Why are we looking up, and not down? It's time to re-think our priorities. In the U.S., for example, NASA's exploration budget is far greater than the ocean exploration budget of the National Oceanic and Atmospheric Administration. It's much cheaper to explore the oceans, but only 5% of our oceans have been explored. By funding deep sea exploration, we could potentially encourage developments in engineering, science, medicine, and technology. Understanding our ocean environment is fundamental, and it is only by exploring our oceans that we can know ourselves and protect our world.

Unit 9, page 93, exercises 3 and 4 Factflix VIDEO

Sara Hi guys, welcome to Factflix, with me Sara …

Tom … and me, Tom! Today, we're talking about the bystander effect.

Sara Er, Tom?! What's this? What a litterbug!

Tom Sorry, I didn't mean to drop it! Obviously I can't get away with anything when you're around!

Sara It's important to do or say something if you see it isn't right! That's better than turning a blind eye, right?

Tom Maybe. It depends.

Sara That's it! Right there, that's the bystander effect!

Sara And that's today's question: "Should we be bystanders?"

Sara A bystander is someone who doesn't intervene. So they don't say or do anything when they see a problem or someone in need of help. A great example illustrating this was a famous experiment in 1968. College students were put in a room and asked to do a questionnaire. Then, after a few minutes, while they were completing it, the room began to fill with smoke. They didn't know it, but it was being pumped in by the experimenters! Now, imagine you are in that room alone. You're completing a questionnaire when you suddenly see smoke.

Sara What happens next? What would you do, Tom?

Tom Hmm … I think the best way to deal with it would be to get out quickly and call for help.

Sara Yeah, you probably would if you were the only person there.

Sara But now imagine there are other people in the room. The smoke appears but they aren't reacting.

Sara What would you do then, Tom?

Tom Honestly? If that were the case, I'd probably convince myself that the smoke can't be that dangerous.

Sara So you'd think something like "If there were really a fire, surely they would do something about it?"

Tom Yeah. It sounds ridiculous, but I think I'd be too worried about looking silly in front of others to do anything. I wouldn't want to appear as though I was overreacting to the smoke by being the only person to make a fuss.

Sara That's exactly how people reacted in the experiment. When participants were on their own, 75% reported the smoke but when they were in a group of three, only 38% reported it. This isn't as surprising as it sounds. Let's put it in a different context. Imagine you're walking down a quiet street when you see another teenager and they're upset because they've had their cell phone stolen. What do you do? You'd probably offer to help them. You might let them use your phone to call their parents or the police, or something like that. But now imagine it's a crowded street with a lot of people walking past. Perhaps now you'd just continue walking and expect someone else to help.

Tom I get it. The more people there are, the less likely you are to help.

Sara Exactly. When there are other people around, we don't feel the same pressure to take action. If others aren't worried, why should you be?

Tom OK, but how should we intervene? I mean some situations are definitely more dangerous than others. For example, if I saw someone being mugged, should I approach the mugger and tell them to back off? I'm not so sure that would be the best approach. In that type of situation, it'd be safer to call the police. Or you could find an adult who can help, but you do need to be careful and protect yourself. I guess the main point is that we should always try to do something. It's the same at school too. When you see bullying for example, you should always say something and try to offer a helping hand to the victim.

Sara But we should understand that this isn't always as easy as it sounds. We can see the bystander effect everywhere. It can even affect us when we deal with much bigger problems, such as how we react to global warming. The thing is that the bigger the problem and the more people it affects, the less likely we are to respond to it.

Tom So, we are all bystanders?

Sara I guess, but we don't have to be. It's always in our power to do something and change things for the better. So I'll always tell you to pick up your litter, Tom!

Tom OK, but you know that was an accident, don't you?

Sara Sure, Tom.

Tom It was!

Sara See you later everyone!

Tom Bye!

Unit 9, page 98, exercises 2 and 3 2.12

In order to keep ourselves and our possessions safe, we need to think about what to do and how to act in risky circumstances. Although violent crime in the U.S. has declined over the last few decades, 300,000 robberies are still committed every year. Most of these are in big cities, and many are pickpocketing offenses or muggings.

The first thing to remember is to put your valuables in zipped pockets. If you have a bag with you, keep it close to your body, and closed, preferably zipped as well. If you prepare yourself in this way, you will probably avoid most pickpocketing situations. However, if you are confronted by a thief, stay calm. Look for a safe way out; for example, give them your cash and valuables, as these items can be replaced. Try not to panic and overreact – the average person loses fifty percent of their IQ, or their ability to reason, in times of intense stress, but reacting rather than thinking is a mistake.

Did you know that it takes a criminal just seven seconds to choose a victim? It's called the 7-second rule and if you know about it, and what thieves are looking for, you can avoid being a target. The rule is based on a study carried out in New York. Researchers used video footage of a busy New York street, and asked prisoners to rate the pedestrians on a scale of 1 to 10: 1 being very easy to rob and 10 being difficult and not worth it. All of them chose people who walked slowly, slouched, and were looking downwards rather than at eye level. The study showed that in order to deter thieves, you should walk confidently, and look confident, particularly in areas of high risk. If you look worried or lost, you may appear vulnerable and therefore easier to rob. Secondly, thieves will look for people who aren't paying attention, so it's important to be aware of your surroundings.

Nowadays, many people look at their phone or listen to music while they're walking down the street. That could be a problem, as noticing things around you when you are focused on something else is difficult. In 1999, psychologists Daniel Simons and Christopher Chabris revealed their study on an effect known as "inattentional blindness." They wrote about an experiment involving a video of six actors, three dressed in white and three dressed in black, moving and passing around a basketball. People were asked to watch the video and count the number of times the players wearing white passed the basketball. Roughly half of the participants were so focused on this task that they failed to notice a woman in a black gorilla costume walk right into the middle of the players, beat her chest, and leave. The experiment showed that many people have a low-working memory capacity, or an inability to focus on more than one thing at a time. So although it's fine to listen to music and to text your friends while you're out, make sure you're aware of what's going on around you, too.

Another thing pickpockets and muggers look out for is people who have expensive clothes and accessories, such as the latest smartphone. Try to keep your phone in your pocket unless you really need to use it. Be cautious if a stranger asks you for the time as they might be doing it to distract you or to get you to take out your phone. And they will rarely target groups of people, so it's best to go out with friends or where there are a lot of other people around. Think twice before walking alone across deserted parks or through quiet and poorly lit areas, especially at night.

My advice today doesn't mean you should stay home and live in fear. It's about taking some common-sense precautions while you're out and about to protect yourself and your possessions. It's about staying aware of what could go wrong. So, get out and explore the world, by all means – it's the only way to get real life experience and develop your street smarts – but stay safe while you're out there. Thank you.

Unit 9, page 101, exercises 2 and 4 Reflect VIDEO

How should we respond to crime?

Should we be bystanders?

In the 1960s, psychologists conducted several experiments to find out how people react during emergencies. The results showed that when faced with a dangerous situation, most people will not react if other people are there. They called this the bystander effect. However, more recently, psychologists have found that most people do have an instinct to help others. If you witness someone being threatened in the street, ask an adult for help or call the police. Don't be a bystander, but don't take unnecessary risks.

How can we prevent crime?

Policing, courts, and prison sentences all play a part in trying to deter criminals, but they are mainly there to deal with crimes that have already been committed. Preventing crime needs different tools. CCTV surveillance, for example, can identify and prevent potential criminals and criminal behavior, but it's also a huge invasion of privacy. The most effective approach is through improved social conditions and good education. Communities with stronger bonds have lower crime rates and young people who receive a good education are more likely to prevent crime than commit it.

Can we always believe what we see?

People used to think that our memories of events were stored like movies on a memory card, but they are much more complex than that. The mind reconstructs events and pieces them together like a puzzle, but the stress of a crime can interfere with this reconstruction. Experiments have shown that people can be easily led to believe things if they are asked about them in a certain way by a lawyer. These experiments prove that it's not difficult to create false memories. So we shouldn't always believe what we think we have seen.

How can we deal with difficult situations?

When most people come across a stressful or risky situation, they tend to freeze or panic. Most of us aren't first responders – like the police – so we aren't trained to react quickly or to deal with stress. Consequently, the best way to deal with difficult situations is to avoid them. Be alert and try to look confident and relaxed. Leave valuables at home, or make sure you keep them safe inside sealed or zipped pockets. But if you are mugged, give the thief what they want and contact the police straight away.

Is policing the answer?

More police officers do not necessarily mean less crime. Since 1997, the number of police officers in the United States has dropped, but violent crime has fallen too, by 37 per cent. However, policing in schools has grown, though a recent study shows that this has not made schools safer. Of course, schools should be safe places, but a police presence can create an environment of fear. We need to make sure we protect young people … without criminalizing them.

Unit 10, page 103, exercises 3 and 4 Factflix VIDEO

Tom Hello and welcome to Factflix! I'm Tom.

Sara And. I'm Sara. Today's question is "What does success look like to you?"

Tom This is what success looks like to me! Cold hard cash earned after babysitting my neighbor's kids!

Sara Good job, Tom. But really? Is success only about wealth for you? Do you need to be richer than the people around you to be successful?

Tom Nah, I'm only joking. I don't think that at all. There are a lot of people who aren't rich that are really successful. Take an environmental campaigner like Greta Thunberg, for example. She probably doesn't have a high income but she's incredibly good at persuading people to take better care of the planet. She's making the world a better place, and that, to me, is real success. It must be really rewarding to devote your life to a good cause like that, don't you think?

Sara Absolutely. But then, she wouldn't be as successful at what she does if she wasn't famous. And fame is often used as a measure of success. Although it doesn't always come in people's lifetimes! Just think of the artist Vincent van Gogh. During his lifetime, he only sold one painting, and barely anyone knew of him, so he wasn't successful. But now he and his paintings are famous all over the world, and he's been a huge influence on other artists. Being remembered long after your death– for something good – is the greatest form of success there is.

Tom I don't know, I think van Gogh would have preferred to make money from his art when he was alive! But, of course, we should say that money or fame – or both – don't always make you happy. There are so many stories about people who are rich and famous but are still really unhappy. It's hard to see them as successful. I'd say that they picked the wrong ambitions to fulfill. They climbed the ladder of success, but it was leaning against the wrong wall. People say the first step to being successful is knowing yourself well, so you can decide what ambitions will make you happy. If your ambition is to have a happy family, and you succeed in that, then I'd say you're a successful person.

Sara There's an interesting theory on that, called the Theory of Needs. It states that there are three needs different people have, once the basics of food, water, safety, and so on, are covered. First, there's the need to feel part of a social group and have close personal relationships. Second, there's the need for achievement and having people notice what you've accomplished. And third, there's the need for power. Success means getting the right balance of these things for you.

Tom Sounds sensible. Above all else, I think I need to feel part of a social group to feel fulfilled. I must admit the power of a leadership role isn't the type of success that appeals to me. I'd feel bad controlling other people's lives.

Sara Really? To me, leadership's more about the power to make an organization better through your ideas than about controlling others. Power – good power – is definitely high on my list of priorities in life.

Tom I guess that just proves different ambitions are right for different people.

Sara So make sure you choose ambitions that suit your personality. Then you can't go wrong! Thanks for watching guys.

Tom Bye!

Unit 10, page 108, exercises 2 and 3 2.14

Do you believe that your traits and abilities are largely fixed and unchangeable? That you're "just not good at math" or that you'll never be very organized, or creative, or sociable? Many people think in this way. Experts call it a "fixed mindset."

But there is an alternative way of thinking: a "growth mindset." People with a growth mindset believe that, with effort and practice, our traits and abilities can change over time. There is plenty of scientific evidence to support this belief. The more we use particular parts of our brain, the more brain neurons connect to each other, and these neuron connections make our brains more effective. So, the positive actions that we take, such as repeated practice of skills, and asking questions to further our understanding, can actually make us smarter. No one is suggesting that everyone has the potential to become the next Picasso or Shakespeare. But, with determination and effort, we can become more intelligent and skilled than we are right now.

And it isn't only intelligence and skill that can change in this way. People with personality traits that they want to change can also be successful in making improvements. For example, by training themselves to replace unhelpful thoughts with more helpful ones, people can make themselves less anxious. And introverted people who make a conscious effort to meet up with friends more often, start to see themselves, even after only a few months, as more extroverted and sociable in personality than they were before.

The benefits of having a growth mindset are huge. People with a fixed mindset accept their weaknesses as unchangeable; people with a growth mindset work hard to get rid of those weaknesses or turn them into strengths. People with a fixed mindset lose confidence and quickly give up when something is hard; people with a growth mindset respond by increasing their effort. People with a fixed mindset see constructive criticism of their work or behavior as hurtful – a criticism of who they are. People with a growth mindset take the criticism on board and use it as feedback to help them improve.

Choosing to develop a growth mindset is a powerful way to boost your confidence. So if you ever start to think "I can't …," stop that thought right there. Instead, think "I can't *yet*" and start practicing! If you are ever tempted to avoid trying something hard because you don't want to fail, resist the temptation. It's only by going outside your comfort zone that you can improve and learn. If you ever make mistakes, and you will – if you're challenging yourself enough – don't be hard on yourself. Make a conscious effort to learn from them and be glad that your mistakes have given you that opportunity.

If you believe that your intelligence and personality can change, then it doesn't matter if you don't have the abilities you would like to right now. You know that, if you keep working on them, you can develop them over time. If nothing in your personality is fixed, anything is possible, so believe in yourself! You've got this!

Unit 10, page 111, exercises 2 and 4 Reflect VIDEO

What matters most to you?

What does success look like to you?

Success comes in many forms: wealth, fame, and power, to name a few. But true success comes from happiness, which means setting goals that suit your personality. Some people say that luck plays an important part in success, too. But others argue that successful people make their own luck, by spotting opportunities and working tirelessly towards their goals.

Which personal qualities count most?

Only you can work out what personal qualities count most. But it can help to look to others for inspiration. Take Steve Jobs for example: his passion and fearlessness kept him going in spite of the challenges he faced. So, what extraordinary things would you like to do? And what personal qualities do you need to do them?

How can you find a career that suits you?

Choosing a career is always challenging. But the more thought you put into it, the better your chances are of finding the career that suits you best. Use your research skills to find out about the career options available to you. And if you find that your chosen career doesn't suit you as well as you had hoped, don't worry. Experts believe that today's young people will, on average, have over five different careers over the course of their lives!

Why is a growth mindset useful?

A growth mindset is about believing that you can improve your intelligence, skills, and personality with effort. You can do this by answering questions in class, even if you're not 100% sure you have the right answer, or by asking questions, which may help you to understand something better. A growth mindset involves choosing the more challenging option and pushing yourself to do it as well as you can. Instead of "I can't do this," try saying "I can't do this yet."

What can stories teach you about values?

Almost all cultures have traditional tales with a moral message. Aesop's Fables, which originated in ancient Greece, are some of the most famous. One of Aesop's stories is about the wind and the sun, who were arguing about who was stronger. They saw a traveler wearing a cloak and decided to have a contest to get him to take it off. The wind blew and blew, but the traveler just wrapped the cloak around himself more tightly. So the sun shone as brightly as he could. The traveler soon became hot and took off his cloak. What's the moral of the story? That kindness and gentleness often get things done more quickly than force.