2 DESIGN

Discussion point

Discuss with a partner.

1 Which of the 10 principles are the most, and least, important?

2 Think of a product you use every day. Does it follow the principles of Dieter Rams?

3 Do you think about design or price when you shop for a new product?

---

aesthetic (adj) attractive or beautiful to look at

innovative (adj) new and original

principle (n) a basic belief or idea that affects how something is done

thorough (adj) complete; not missing any necessary parts or details

unobtrusive (adj) not attracting too much attention

Dieter Rams'
10 principles of good design

Good design…

1 is innovative

2 makes a product useful

3 is aesthetic

4 makes a product understandable

5 is unobtrusive

6 is honest

7 is long-lasting

8 is thorough down to the last detail

9 is environmentally friendly

10 is as little design as possible

A VIRTUAL FUTURE?

Before you watch

1 Complete the sentences with the words in the box.

gadget   gimmicky   headsets   kit

1 All VR _____ are heavy and uncomfortable.

2 VR is the must-have _____ of this generation.

3 VR is _____ and expensive.

4 VR requires far too much _____.

2 Work with a partner. Do you agree with the sentences in Exercise 1? Why? / Why not?

UNIT AIMS

LISTENING 1 Inferring from context
LISTENING 2 Listening for key terms and definitions
STUDY SKILL Creative problem solving: difficulties finding a solution?

VOCABULARY Design vocabulary
GRAMMAR *Wish* when referring to present or future time
SPEAKING Talking about problems and solutions

Dieter Rams' portable radio.

While you watch

Watch the video and choose *T* (True) or *F* (False).

1   The Mobile World Congress is held twice a year.   T / F
2   Antonio Muñoz is at the MWC to present a new VR headset.   T / F
3   The default sales kit comes with one base station.   T / F
4   Antonio Muñoz believes his VR headset is worth the money.   T / F
5   It's predicted that 97 billion headsets will have been sold by 2020.   T / F

After you watch

Work with a partner. Discuss the questions.

1   Would you pay nearly 800 US dollars for a VR kit? Why? / Why not?

    Yes, I would because …

    No, not particularly because I think …

2   What kind of games would you like to try or worlds would you like to visit?

    I'd like to try out …

3   What other uses, apart from games, could VR equipment have?

Principles of good design

A Vocabulary preview

1 Match the words in bold with the correct definitions.

1	**come up with** (phr v)	a	to find the size, weight, or amount of something
2	**complex** (adj)	b	to be able to understand something or solve a problem
3	**device** (n)		
4	**features** (n)	c	to use or control a piece of equipment
5	**figure out** (phr v)	d	a machine or piece of equipment used for a specific purpose
6	**functional** (adj)		
7	**measure** (v)	e	designed to be good at a doing a particular job
8	**operate** (v)	f	involving lots of details or small parts that make it difficult to understand
		g	to think of an idea, plan, or solution
		h	important parts or pieces of something

2 Complete the sentences with the words in bold from Exercise 1.

1 Good design should be simple, never too _____.
2 It's important for any mobile _____ to be attractive, and easy to use.
3 If you can't _____ how something works, it's badly designed.
4 Today's cell phones have too many hidden _____.
5 Working in a group is the best way to invent products, and _____ new ideas.
6 There is no easy way to _____ the success of a product's design.
7 You shouldn't need instructions to _____ new technology.
8 Buy products because they're _____, not because they look good.

3 Work with a partner. Which sentences in Exercise 2 do you agree with, and why?

B Before you listen

Look at the pictures of everyday objects. Do you think they are well-designed? Why? / Why not?

Norman door   *measuring jug*   *Braun calculator*   *coffee machine*

C Global listening

1 🎧 **2.1** Listen to *Principles of good design,* and number the products in the order they are mentioned.

___ measuring jugs

___ the Braun calculator

___ TV remotes

___ coffee machines

___ microwaves

___ Norman doors

2 🎧 **2.1** Listen to *Principles of good design* again, and choose the correct option to complete the sentences.

1 Dieter Rams was a German …

   a engineer.

   b scientist.

   c designer.

2 The Braun calculator is given as an example of …

   a a poorly designed product.

   b a product designed by Rams.

   c a product that was designed in the 1970s.

3 Don Norman believes doors …

   a shouldn't need written instructions.

   b should always have "push" and "pull" written on them.

   c should all have vertical handles.

4 Marta thinks her coffee machine …

   a is simple, and easy to use.

   b is difficult to operate.

   c doesn't need such a complicated instruction manual.

5 Marta chooses to evaluate … for her assignment.

   a a TV remote

   b a coffee machine

   c a measuring jug

GLOSSARY

evaluate (v) to think carefully about something to decide how good or bad it is

pioneer (v) to do something for the first time

vertical (adj) standing or pointing up and down, not side to side

D Close listening

Inferring is the process of drawing conclusions based on information that is implied, but not said directly. By listening for **clues**—the speaker's or speakers' words and tone of voice, as well as your knowledge of the world— you can make inferences about the conversation.

The following are common types of inference questions in exams:

Who are the speakers? / What are they talking about? / How does the speaker probably feel about …? / What did the speaker mean by …? / Why did the speaker say…? / What can you conclude about…? / It can be inferred that …

🎧 **2.1** Listen to *Principles of good design* again. Answer the questions.

1   We can infer that the Braun calculator …

    a   is complicated.   c   has a simple design.

    b   has unnecessary features.   d   is no longer in production.

2   We can infer that Don Norman …

    a   thinks designers can ignore the user of their products.

    b   thinks doors are usually badly designed.

    c   is interested in everyday items being simple to use.

    d   thinks products should clearly state how they should be used.

3   Marta's kitchen jug was designed to be most useful for …

    a   holding dry food.   c   measuring hot liquids.

    b   mixing powders.   d   displaying in the kitchen.

4   What can we infer about Marta?

    a   She is a fast learner.   c   She is lazy.

    b   She admires her father's   d   She lives in university
       understanding of technology.   accommodation.

E Critical thinking

Work in a group. Discuss the questions.

1   Have you experienced the problem with doors that Norman describes?

2   How would you design a door that does not require written instructions?

3   How do products in your classroom signal to the user how they should be held, pressed, turned, or moved?

Study skills | Creative problem-solving: difficulties finding a solution?

If the solution to a problem isn't immediately apparent, work creatively to find a different approach.

Simplify

- Remove unnecessary detail.
- Generalize: find points in common with other material or theories you have covered.
- Make broad assumptions that help you generalize the problem.

Consider alternative ways of looking at it

- Take a different angle: rephrase the problem, or look up similar examples.
- Make it real: relate problems to parallel, concrete problems from real life.
- Combine the possibilities: does the problem have several parts to it that each need to call upon a different aspect of previous coursework?

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Work with a partner. First, practice simplifying the problem, then consider alternative ways of looking at it. Come up with a better solution for each problem.

1 Your school's new library building is very poorly designed, and all the subjects are in different areas. The new library staff members are unsure where to find anything. Many students are wasting a lot of time trying to find books they need, and often leave empty-handed in frustration.

  The school's solution is for new students to be given a tour of the library in their first week on campus.

2 You are taking an exam next week, and you and your classmates are worried you might fail because you are not sure what will be in the exam. Your teacher is away on leave, and hasn't left any revision notes or instructions.

  The school's solution is to remind you to revise carefully using your reading list.

3 The process for handing in assignments at your college is inefficient. Students have to queue at the Dean's office to have the assignment stamped, and then there are so many papers that they often get lost, or grading is delayed. Assignments are often late because queuing takes so long. Students are penalized for late submission.

  The school's solution is to suggest students get up early to be first in the queue.

VR and AR

A Vocabulary preview

Complete the sentences with the words in the box.

artificial	computer-generated	feedback	layer
similarity	simulation	three-dimensional	train

1 This is just one _____ between the two programs.
2 _____ imagery (CGI) is a common feature of modern movies.
3 It's not real though. Players explore an _____ universe.
4 _____ on the game has been generally positive.
5 We used a computer _____ to test our design.
6 The program allows designers to _____ text over the image.
7 Students build real _____ models to explain their design.
8 Laurence has agreed to _____ the new web designer.

B Before you listen

Work with a partner. Discuss the questions.

1 What are the people doing in the pictures?
2 What do you know about *augmented reality* (AR) and *virtual reality* (VR)?

C Global listening

🎧 **2.2** Listen to *VR and AR*. Complete the outline with the topics in the box in the order that the speaker discusses them.

> aviation   blended AR/VR experience   definition: augmented reality
> definition: virtual reality   fashion   haptic feedback   medicine
> similarity between AR/VR

1   Introduction of speaker, and topic

1 _____: alter our perception of the world.

2 _____

Ex.: Pokémon Go

3 _____

2   Uses of VR / AR today

Entertainment

4 _____

5 _____

3   AR / VR in the future

6 _____

7 _____

8 _____

Listening for key terms
and definitions

D Close listening

Good speakers often provide definitions of key terms in order to help listeners follow the content of their presentation. English has many ways of signaling a definition. For example:

(Note: X = the term being defined)

X means / is …   *X can be defined as …*

X, meaning / which means / which is …   *X, or …*

An X is a [type, or class] that …   *The definition / meaning of X is …*

This term means …

1   🎧 **2.3** Listen to part of *VR and AR* again. Complete the definitions with words from the box.

arachnophobia   augmented reality
haptic   to augment   virtual reality

1   _____ something means to add to or increase it.
2   _____ is a technology that layers or puts computer-generated content on top of the existing environment.
3   _____, is an artificial, computer-generated simulation—that means a copy—of a real-world environment.
4   Let's say you have a person with _____, which is a fear of spiders.
5   The term "_____" is defined as "relating to the sense of touch."

2   🎧 **2.2** Listen to the whole talk again. Write *AR*, *VR*, or *Both* next to each item.

1   _____ alters our perception of reality
2   _____ combines the real environment with artificial images
3   _____ requires a special headset
4   _____ used for entertainment and play
5   _____ used for training pilots
6   _____ used to train surgeons
7   _____ will soon include haptic feedback

E Critical thinking

Work with a partner. Discuss how you think VR and AR technology could be used to improve education.

Critical thinking

## Developing and applying evaluation standards

Creating and applying a clear set of standards can help you logically evaluate anything from products to arguments.

For example, think about when you were choosing your current phone. You probably asked yourself questions like – Is it good value for money? Does it have all of the features I want?

This approach could equally be applied to an argument – Does the speaker provide sufficient evidence? Are the sources reliable? Is their conclusion logical?

Taking this methodical approach to evaluation is a simple way to think critically about ideas you're presented with.

1   Look back at *Dieter Rams' 10 principles of good design* on page 26. Discuss the questions with a partner.

    1   What do each of the principles mean?
    2   What do you think Rams used the principles for?

2   Work with a partner. Discuss which of Rams' principles are most / least important for the following products:

    phone   lightbulb   car   computer   shoes

3   Work in a group. Make a list of five principles you could use to evaluate a house or apartment. Then use these principles to evaluate where you live. According to your standards, who has the best house or apartment?
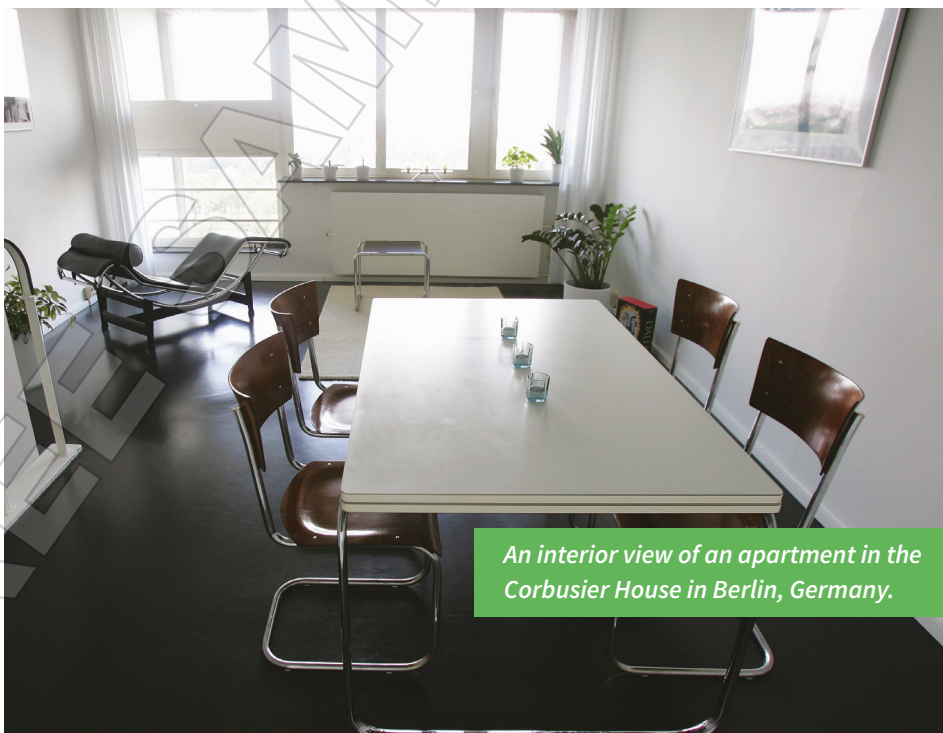
An interior view of an apartment in the Corbusier House in Berlin, Germany.

Vocabulary development

Words to talk about design

1 Match the words in bold with the correct definitions.

1 **classic** (adj)

2 **element** (n)

3 **environmentally friendly** (adj)

4 **flexible** (adj)

5 **image** (n)

6 **industrial** (adj)

7 **measurement** (n)

8 **process** (n)

a able to change, bend, or move easily; or be used for different purposes

b connected with the production of goods in factories, especially using machines

c popular for a very long time because it is very good

d a picture in a magazine, on a computer, etc.

e the size, or amount of something, expressed in numbers, or standard units such as millimeters, or ounces

f a basic part of something

g not harmful to the air, water, earth, etc.

h a set of actions done in a particular order for the purpose of making, or doing something

2 Complete the sentences with words from Exercise 1. Change the form if necessary.

1 Most countries use metric _____, that is centimeters, liters, etc., but the United States uses "imperial" units like inches, and pounds.

2 The _____ Revolution in the 18th and 19th centuries was the time when machines were first used to make products in large quantities.

3 Plastic is a very _____ material. It can be used to make thousands of different things.

4 April 22 is Earth Day, when people celebrate our planet, and honor _____ companies that produce goods without causing pollution.

5 The Chanel Suit is a _____ design that will never go out of fashion.

6 Let me talk you through the key _____ of our design.

7 The camera on the latest smartphone produces incredibly clear and bright _____.

8 The first step in the design _____ is defining a need; that is, thinking of a product or service that should, but does not yet exist.

Academic words

1 Match the words in bold with the correct definitions.

1	**alter** (v)	a	to talk, or do things with other people
2	**contrast** (n)	b	a large difference
3	**eventually** (adv)	c	a thing that replaces another, similar thing
4	**income** (n)	d	money that someone earns
5	**interact** (v)	e	to change
6	**substitute** (n)	f	after a long period of time

2 Complete the sentences with the words in bold from Exercise 1.

1 Once I form an opinion, or belief, it is very hard for me to _____ my thinking.

2 I love shoes with colors that have a lot of _____, such as black and white, or red and yellow.

3 _____, after I finish my education, I would like to have a large family.

4 In my chosen profession, most people can expect to make a good _____ after they finish their education.

5 When I travel, I make a great effort to _____ with local people, eat their food, and speak their language.

6 I usually don't use real sugar in my coffee. I prefer to use a _____ like sucralose, or aspartame.

3 Work with a partner. Which of the sentences in Exercise 2 are true for you?

Speaking model

You are going to learn about *wish* when it is used to talk about present time, talking about problems and solutions, and using intonation to make declarative statements. You are then going to use these to design a new product in a group.

A Analyze

Alex: Let's start by identifying a problem that needs to be solved. And then we'll try to come up with a product, or process for solving it. Does anyone have an idea?

Lizzie: I do. Where I live, it rains all the time, and I always get soaking wet.

Alex: That problem has been solved. Get an umbrella.

Lizzie: But umbrellas are terribly designed. They're constantly breaking, and they're dangerous. I wish someone would invent an umbrella that doesn't break, turn inside out in a strong wind, or poke people in the eye.

Sevban: Oh, I agree! I get hit by umbrellas all the time; it's really annoying.

Lizzie: And another problem is that it's a real pain to close most umbrellas. You have to use both hands, and it's hard to fold them up properly.

Alex: You're right. So, we need to design an umbrella that is safe, doesn't break, and that's easy to close up. Any ideas?

Lizzie: I think we could solve the first problem if the umbrella frame were made of plastic instead of aluminum. Plastic is flexible, so the umbrella would bend instead of breaking in the wind. A product like that would be longer-lasting, and much more environmentally friendly.

Alex: What about making it easier to close?

Sevban: I have an idea. You know how a lot of umbrellas have a button you can push so it opens instantly? What if our umbrella had a button you could press to close it instantly? All we'd need is a simple mechanism …

Alex: You could do it with one hand.

Lizzie: That would be really useful.

Work with a partner. Read the model, and answer the questions.

1   What problem is the group trying to solve?
2   What three issues do the students have with umbrellas?
3   What solutions do they come up with?
4   How do the speakers invite each other to share ideas?
5   What phrases do the speakers use to show their frustration with umbrellas?

B Discuss

Work with a partner. Discuss the questions.

1   What other solutions can you think of to solve the problems the students mention?
2   Are there any other ways to solve the problem without having an umbrella?

Grammar

> **Wish when referring to present or future time**
>
> We use *wish* + past simple to talk about things we want to change in the present:
>
> *I wish this coat had pockets.*
>
> *Stella wishes she were a designer.*
>
> We use *wish* + *would* / *could* + base form to talk about things we want to change in the near future:
>
> *I wish someone would invent a better umbrella.*
>
> *I wish we could find a more environmentally friendly solution.*

1 Complete the sentences with the correct form of the verb or modal + verb in parentheses.

1   Today is Tuesday. I wish it _____ (be) Saturday so that I could stay home.

2   I don't have my classmate's number. I wish I _____ (have) it so I could invite her to a party.

3   Rada wishes she _____ (can fly) home for the winter break, but she can't afford to buy a ticket.

4   These shoes hurt my feet. I wish they _____ (be) half a size larger.

5   My neighbors are too noisy. I wish they _____ (move).

6   I'm going to be late to work. I wish the bus _____ (come).

2 Work with a partner. Answer the questions. Use *wish* in your responses.

1   Think of an object you use every day. Do you wish you could change, or improve it? How?

2   What career will you have in the future? What career do you wish you could have, or be?

3   Think about the design of your classroom, or school building. What do you wish were different? What do you wish the room or building had?

4   What skill do you wish you had, or what do you wish you knew how to do?

5   Imagine that you had your choice of a personal trainer, a personal chef, or a personal driver. Which one do you wish you had?

6   Do you like the place where you live? Do you wish you lived somewhere else? Explain.

Speaking skill

We use the following phrases to talk about problems and solutions:

Talking about problems	Talking about solutions
One problem is … The second is …	*Why don't we / you …?*
The biggest issue is that…	*How about* verb+*ing?*
The (main / obvious) problem / challenge / difficulty / issue is …	*The (best) solution is …*
	What if we / you …
I have (several / a lot of) problems with …	*I suggest we / you …*
It's a (big / serious) problem.	*What if we / you …*

1 Work with a partner. Take turns describing the problems below and suggesting solutions.

   1 You go to bed late, so you have trouble waking up in the morning.

   2 You and two friends want to travel from Florida to Toronto together, but can't afford a flight.

   3 You only have 30 minutes for lunch, but there aren't any cafés or restaurants nearby.

   4 Your city has a growing number of homeless people and no money to house them.

2 Work in groups. Look at the poorly designed objects. Use language from the box to describe or identify the problems. Then suggest one or more solutions.

1

2

3

Pronunciation for speaking

Using intonation to make declarative statements

Statements, i.e. sentences that give facts, or information, as opposed to questions, or commands, typically have a "2–3–1" intonation pattern in English. This means the speaker's voice begins on level 2 ("neutral"), jumps up to 3 ("high") on the last stressed syllable, and then steps down to 1 ("low"). There are two specific rules concerning the pronunciation of declarative statements:

1 If the last stressed syllable is also the last syllable, the speaker's voice jumps up to 3, and then glides down to 1 on that syllable:

*It's a poorly designed **door**.*

2 If the last stressed syllable is before the last syllable, the voice jumps up to 3 on that syllable, and then steps down to 1:

*She didn't understand the as**sign**ment.*
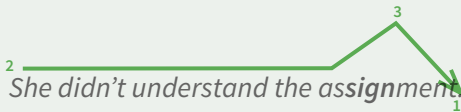
1 🎧 **2.4** Listen to the declarative statements. Notice the last stressed syllable. Draw the intonation contours according to the rules in the box above.

   1 The instructions weren't clear.

   2 Don Norman is an American designer.

   3 The kitchen has a lot of fancy tools.

   4 Virtual reality is used to train surgeons.

   5 Arachnophobia is a fear of spiders.

   6 Someday soon there may be augmented cooking lessons.

2 Work with a partner. Choose the last stressed syllable of each statement. Draw the intonation contour. Then practice saying the statement.

   1 I have a real problem with umbrellas.

   2 Plastic is flexible.

   3 The product is environmentally friendly.

   4 I have an idea.

Speaking task

Design and present a new product that solves a problem.

Brainstorm

In groups, make a list of problems or needs you have encountered in your everyday life or in an area such as the ones below.

education	health	entertainment	fashion	communication
business	sports	science	media	engineering

Plan

Design a product to solve one of the problems you listed in the Brainstorm step. It can be an object, a service, or an AR or VR program. As much as possible, your design should match the criteria for good design. Use drawings or models to help you understand the problem. Don't criticize, but work together to come up with more new ideas.

Speak

Practice your presentation. Try to answer the following questions in your presentation.

What is the problem?
What are the weaknesses of existing solutions?
What is your new product, and how will it solve the problem?

Share

Present your product to the class. Speak for two minutes.

Reflect

Work with a partner. Discuss the questions.

1   How does a well-designed product make our lives easier? In contrast, how does a poorly designed product create problems for us? Give examples.
2   Would you enjoy having a career as a designer? Why? / Why not?

Review

Wordlist

MACMILLAN DICTIONARY

Vocabulary preview

artificial (adj) **	device (n) ***	functional (adj) **	similarity (n) **
come up with (phr v)	feature (n) ***	layer (v) ***	simulation (n) *
complex (adj) ***	feedback (n) **	measure (v) ***	three-dimensional (adj)
computer-generated (adj)	figure out (phr v)	operate (v) ***	train (v) ***

Vocabulary development

classic (adj) **	environmentally friendly (adj)	image (n) ***	measurement (n) **
element (n) ***	flexible (adj) **	industrial (adj) ***	process (n) ***

Academic words

alter (v) **	eventually (adv) ***	interact (v) *
contrast (n) ***	income (n) ***	substitute (n) *

Academic words review

Complete the sentences using words from the box.

altered   eventually   income   structure   substitute

1   In most recipes, milk can be used as a _____ for cream.
2   The company hasn't significantly _____ its approach since the 1980s.
3   After an eight-hour climb, the group _____ reached the summit.
4   The Metropol Parasol in Seville, Spain, is a unique _____. It is the largest timber-framed building in the world.
5   In the Gulf States people don't have to pay _____ tax on their earnings.

Unit review

Listening 1	☐	I can infer meaning from context.
Listening 2	☐	I can listen for key terms and definitions.
Study skill	☐	I can be creative when problem solving.
Vocabulary	☐	I can use design vocabulary.
Grammar	☐	I can use *wish* when referring to present or future time.
Speaking	☐	I can talk about problems and solutions.