11 Design and innovation

Building, engineering

Building

1.1 **Which adjectives best describe your home?**

A old traditional modern

B concrete brick steel timber

C single-storey two-storey multi-storey / high rise

1.2 **Complete the sentences using the words in brackets in the correct order.**

1 It's a ..... house. (brick, traditional)

2 I live in a ..... apartment. (high-rise, lovely)

3 I'd rather live in a ..... cottage. (small, country)

1.3 **Now make a similar sentence about your own home.**

I live in ..... but I'd rather live in ..... .

Vocabulary note

If we use more than one adjective they are normally in the following order: opinion, size, age, shape, colour, origin, material, type: An ***ugly, old, brown, plastic shopping*** bag. However, more than four adjectives together can sound awkward. NOT ~~*An ugly, big, old, rectangular, brown, Italian, plastic bag.*~~

2.1 11a **Listen to three people describing their homes and complete the table below.**

	Type of building	*Material(s) used*	*Favourite feature*	*Adjectives used to describe it*
A				
B				
C				

2.2 11a **Listen again and answer the questions. Include the words from the recording that give you your answers.**

Speaker A

1 Where did the stone come from?

.....

2 What makes the ceilings ornate?

.....

3 Is the house large or small?

.....

Speaker B

1 Is the computer system new or old?

.....

2 What makes the apartment functional?

.....

3 Are the bedrooms large or small?

.....

4 Are the buildings around it tall?

.....

Speaker C

1 Is this house different from those around it?

.....

2 Which room does the speaker say is bright?

.....

3 What shape is the bottom of the staircase?

.....

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Error warning!

We say that you *build a house / a hospital* etc, NOT ~~*build a building*~~. *Build up* is not used to talk about construction. It refers to increasing or developing something: *He went to the gym to* ***build up*** *his muscles. We are trying to* ***build up*** *a relationship with a company in Japan. I had to* ***build up*** *the confidence to apply for the manager's job.* NOT ~~*We need to build up a hospital.*~~

Engineering

3.1 **Scan the article and underline these words.**

invented hoisted hauling platforms storage steel lift shaft tension
trigger device internal frame construction skyscrapers landmarks

The elevator

Next time you are in a lift, look for the name of the people who made it. Chances are it will be the Otis Elevator Company. It was Elisha Otis who invented the gadget that made the modern passenger lift possible. The concept of elevation was already well established. Louis XV of France disliked stairs so much that he was regularly hoisted skywards in a 'flying chair' by several strong men hauling on ropes. In Otis's time, warehouses commonly used moving platforms to transport goods between floors. However, elevating anything further than one floor or weighing more than 70 kilograms would have been considered far too dangerous.

Otis worked for a bed manufacturer who was keen to expand his business but needed to find a way to move his beds to an upper floor for storage. The inventive Otis soon had a solution to the safety problem: a tough steel spring system that meshed with ratchets on either side of the lift shaft so that if the rope gave way the sudden loss of tension would trigger the device, stopping the lift from falling.

At the 1854 World Trade fair in New York, Otis unveiled his invention and orders began to pour in, including one from the United States Assay Office which at that time was constructing one of the first buildings with an internal steel frame to support the exterior walls. This was the same construction method that skyscrapers would use. If not for lifts, the towering landmarks which feature so prominently in today's architecture would have been impossible and the character of our cities would be entirely different.

3.2 **Decide if the following statements are true or false. Write the words you have underlined that helped you.**

1 Elisha Otis came up with the idea that made elevators safe for people. True (invented = came up with the idea)
2 Louis XV was lifted into the air by men pulling ropes. .....
3 Warehouses in Otis's time used boxes to move their goods to different levels. .....
4 Otis's boss wanted to move beds to a higher level for delivery. .....
5 Otis made his springs out of plastic. .....
6 The ratchets were located on the inside of the lift. .....
7 If a rope became slack this activated the contraption. .....
8 The US Assay Office building had its support structure on the outside. .....
9 The US Assay Office used a similar building technique to today's tall buildings. .....
10 The writer believes that skyscrapers can help you find your way around a city. .....

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3.3 **Match the verbs (1–8) in column A with the definitions (A–H) in column B.**

A	B
1 condemn	A build something on a piece of land
2 demolish	B build again
3 develop	C repair and make new again
4 devise	D knock down
5 maintain	E live in or use a space
6 occupy	F judge a building not to be safe
7 reconstruct	G keep in good condition
8 renovate	H invent

3.4 **Choose the correct words.**

1 We can't move into the house until they have *developed / renovated* it.
2 No one has been allowed to occupy the building since it was *condemned / reconstructed*.
3 The architect *devised / demolished* a clever way of keeping the house cool in summer.
4 The tenants were offered a reduced rent if they agreed to *maintain / occupy* the property.

3.5 **WORD BUILDING**
Complete the table.

Noun/person	*Verb*	*Adjective or past participle*
builder / building	*build*	
		constructed
	design	
engineer		
innovation		
	invent	
	occupy	
structure		

3.6 **Complete the text with words from 3.5.**

A group of (1)i..... architecture students has won this year's Timber Bridge Competition. The students' (2)d..... beat 17 others. The team used an (3)i..... approach to their bridge which was (4)b..... entirely out of timber. They used traditional (5)c..... methods to avoid using nails or screws. The students demonstrated a good knowledge of fundamental (6)e..... principles. They (7)c..... a working model of the bridge, which (8)o..... an entire car park. This allowed them to test the bridge and ensure that the (9)s..... was sound.

4 **PRONUNCIATION** 11b **Tick the correct sound for each of the letters underlined. Listen and check your answers, then practise saying the words correctly.**

1	design	s	z	6	housing	s	z
2	please	s	z	7	fasten	s	z
3	device	s	z	8	destruction	s	z
4	devise	s	z	9	use (n)	s	z
5	residence	s	z	10	use (v)	s	z

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Test practice

Academic Reading

Test Tip

The headings in this type of question must represent the ideas expressed throughout each section, not just in one sentence.

Questions 1–5

The reading passage has five sections, A–E.
Choose the correct heading for each section from the list of headings below.
Write the correct number, i–viii, next to questions 1–5.

List of headings

- **i** Outdoor spaces in the house of tomorrow
- **ii** The house of the future helps with the battle of the sexes
- **iii** The compact home of tomorrow
- **iv** The multipurpose home of tomorrow
- **v** Housework declines in the house of the future
- **vi** Mixed success for visions of the future
- **vii** The future lies in the past
- **viii** A change of structure in the home of tomorrow

1 Section A .....

2 Section B .....

3 Section C .....

4 Section D .....

5 Section E .....

The house of the future, then and now.

A

The term 'home of tomorrow' first came into usage in the 1920s to describe the 'ideal house for future living' (Corn and Horrigan, 1984, p. 62). It quickly emerged as a cultural symbol for the American obsession with the single-family dwelling. In the 1930s and 1940s, advertisers and promoters picked up the concept, and a number of full-scale homes of tomorrow traveled through fairs and department stores. It was in this same era that American consumer culture was consolidated. In the 1920s, there were three competing conceptions of the home of the future. The first, indebted to modernist architecture, depicted the home of tomorrow as a futuristic architectural structure. The second conception was that of the mass-produced, prefabricated house, a dwelling potentially available to every North American. These first two failed to capture the imagination and the dollars of industrialists or of the public, but the third image of the home of the future did. From World War II until the present, the evolving story of the home of the future is a story of 'the house as a wonderland of gadgets' (Horrigan, 1986, p.154).

B

In the 1950s, the home of the future was represented in and by one room: the kitchen. Appliance manufacturers, advertisers and women's magazines teamed up to surround women with images of the technology of tomorrow that would 'automate' their lives, and automation became a synonym for reduced domestic labor. In 1958, one author predicted 'Combustion freezers and electric ovens may someday reduce the job of preparing meals to

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a push-button operation' (Ross, 1958, pp.197–8). 'Before long there will also be self-propelled carpet and floor sweepers, automatic ironers that can fold and stack clothing, laundro-matic units that will wash and dry clothes even as these hang in the closet, dishwashers capable of washing and drying dinnerware and storing it in the cupboard, and many additional push-button marvels.' (Ross, 1958, p. 200)

The postwar faith in and fascination with science is very apparent in future predictions made in the 1950s. The magazine *Popular Mechanics* did a special feature in February 1950 entitled, 'Miracles You'll See in the Next Fifty Years'. 'Housewives in 50 years may wash dirty dishes – right down the drain! Cheap plastic would melt in hot water.' They also predicted that the housewife of the future would clean her house by simply turning the hose on everything. Furnishings, rugs, draperies and unscratchable floors would all be made of synthetic fabric or waterproof plastic. After the water had run down a drain in the middle of the floor (later concealed by a rug of synthetic fibre) you would turn on a blast of hot air and dry everything.

The overriding message of the 1950s vision of the house of the future is that one can access the wonders of the future through the purchase of domestic technology today. In an October 1957 issue of *Life* magazine, the built-in appliances from Westinghouse reflect the 'shape of tomorrow'. 'Put them in your home – suddenly you're living in the future.' As Corn and Horrigan (1984) noted, 'by focusing on improving technology ... the future becomes strictly a matter of things, their invention, improvement, and acquisition' (p. 11).

C

What is most striking in the 1960s home of the future is the recognition and incorporation of social and political turmoil into the representation of domestic technology. Technology moves out of the kitchen and spreads to the living room, bedroom and bathroom. While the home of the future was still a wonderland of gadgets, who was using the gadgets, why, and to what effect, was finally being opened up to possible alternatives. Whirlpool dishwashers ran an advertisement in November 1968 in *Ladies' Home Journal* explaining, 'How Whirlpool made my husband a man again'. Readers learned of the crisis of masculinity that can take place if a man helps with the housework. We learn that Barry is a great son, father and husband. He believed that the scrubbing of pots and pans was man's work and so he helped out at home. However, at work the men that work for him used to laugh behind his back because his hands were rough and red. The Whirlpool two-speed dishwasher stopped all that. Thus, a household appliance can preserve a man's masculinity by ensuring that he does not have to do 'women's work' in the home.

D

The broader social context continued to be reflected in the 1970s home of the future, but now the trend was to look backwards for the future, back to a proud pioneer heritage. In stark contrast to the 1950s, 'old-fashioned' is no longer used in a pejorative way; it is seen as a cherished value. Over the 1970s, North America experienced a certain erosion of trust in science and technology and there was less utopian speculation about the technologically produced future. The previous unproblematic link between technology, the future and progress was being questioned (Corn, 1986).

From the space-age metals of the 1960s where every object had an electrical cord, we find a return to the traditional. Ideal homes featured wood, inside and out, and an increased emphasis on windows. Domestic technologies were not featured as prominently, and the modernist or ultra-modernist designs of a few years earlier were all but gone. The use of wood, combined with the use of windows, worked to blur the line between outside and inside, bringing the outside into inner or domestic space.

We also see the influence of the Green movement, such as in the deployment of technology for solar-heated homes. The energy crisis was making itself felt, reflecting fears about a future not quite as rosy as that predicted by *Popular Mechanics* in 1950. Whereas in the 1960s the General Electric Company was exhorting consumers to 'Live Electrically', in the 1970s, the Edison Electric Company found it necessary to address the energy crisis directly in their advertisements.

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E

In 1978, *House Beautiful* magazine, predicting what the homes of the 1980s would be like, suggested that self-indulgence was the wave of the future. 'Our senses are awakened, and a new technology is waiting to aid us in giving them a free rein. Bathroom spas and gyms, computerized kitchens, wide screen entertainment, even home discotheques are all on the way.' By the 1980s, the environmental and social movements of the 1970s were starting to ebb, significantly more women were working outside of the home, and computer technology was becoming more of a reality in the household. All these trends opened the door for a renewed love of technology.

The line between work and leisure became blurred in the 1980s. Forget about not being able to fit exercise into a hectic workday, in 1982, you can work and work out simultaneously. The Walking Desk, a computer workstation for the office at home, has a treadmill, stationary bike and stair climber installed underneath. On her most productive day, a worker should be able to walk four to five miles and burn as many as fifteen hundred calories while maintaining a normal workload. The desk will also come with a compact-disc player and color monitor for viewing nature scenes on a computer break. Thus, in addition to turning exercise into work, we see that nature is being brought into the home for breaks. One never has to leave the home, but the imperative is still clearly to be productive.

Questions 6–13

Look at the following list of statements (questions 6–13).
Match each statement or prediction with the correct time period, A–E.
Write the correct letter, A–E, next to questions 6–13.
NB You may use any letter more than once.

6 There was a loss of faith in automation. .....

7 Advertisers believed that houses would be made in a factory. .....

8 There were fewer housewives. .....

9 One writer envisaged furniture being made from fully washable materials. .....

10 There was an increased awareness of the environment. .....

11 There was a link between our interest in the future and increased consumerism. .....

12 One magazine predicted that disposable plates would be used. .....

13 A new expression for 'the perfect home' was introduced. .....

List of time periods
A 1920s
B 1930s and 1940s
C 1950s
D 1970s
E 1980s

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