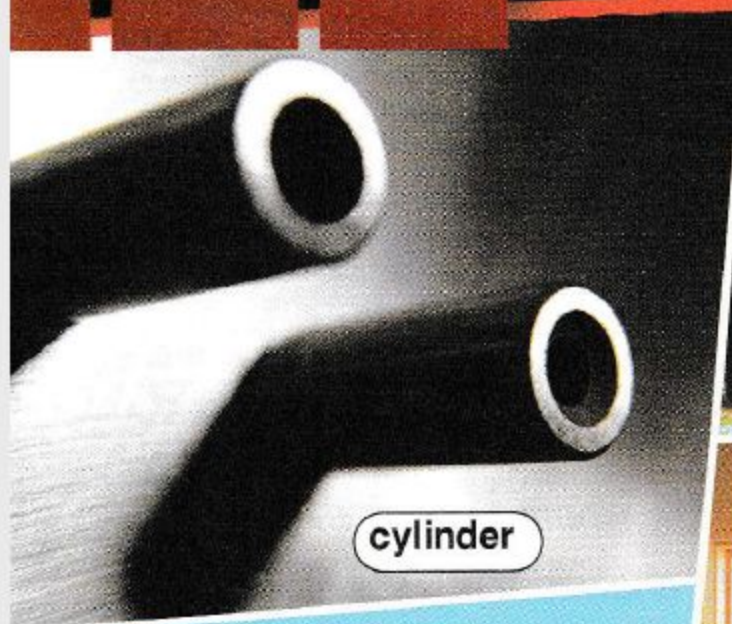


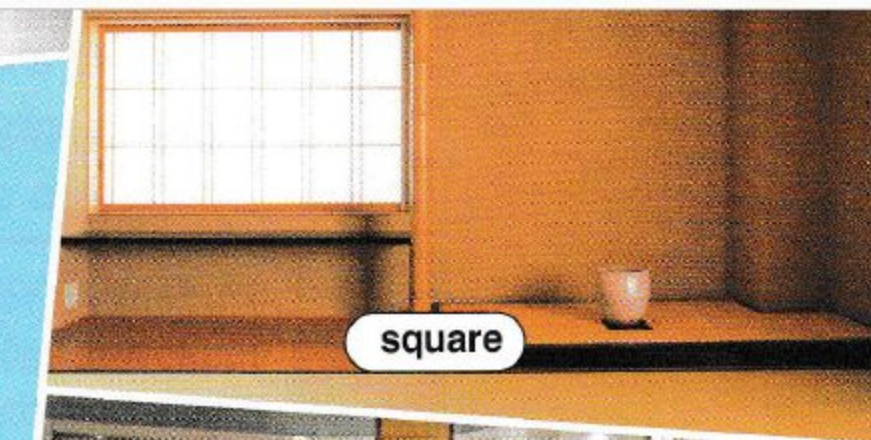
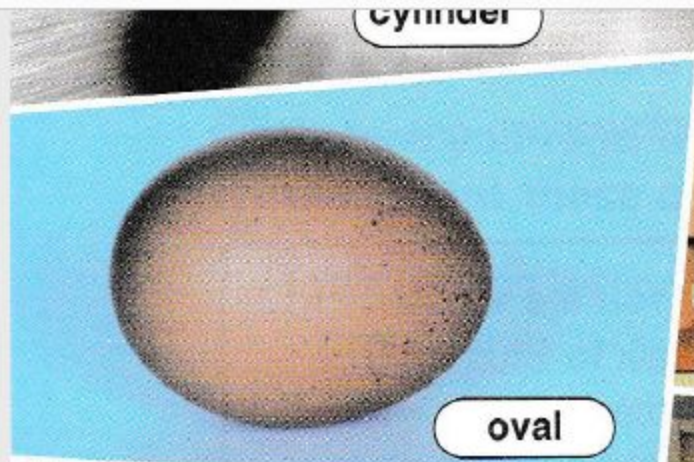
2 Shapes



The Roman Coliseum

The Importance of Shapes in Architecture and Engineering

Most students learn about geometric



Get ready!

The Importance of Shapes in Architecture and Engineering

Most students learn about **geometric** shapes in school. But **architects** also need to understand them. In fact, those basic shapes appear in many historical buildings. For example, look at the Roman Coliseum.

Although most buildings have a **rectangle** or **square** shape, the Coliseum is an **ellipse**, or **oval**. It features many **arches** supported by columns, which are **cylinders**. They provide support.

Some parts of the Coliseum have extended arches, or **vaults**, which form



1 Before you read the passage, talk about these questions.

- 1 How do shapes relate to engineering?
- 2 What different shapes do engineers use to construct buildings?

Reading

2 Read this blog entry. Then, choose the correct answers.

- 1 What is the blog mainly about?
 - A how an ancient building was constructed
 - B why shapes are important to architects
 - C why students learn about geometric shapes
 - D which shapes provide the best support
- 2 A column is an example of a(n)
 - A cylinder
 - B oval
 - C square
 - D arch
- 3 Which shape is NOT used in the Coliseum?
 - A a semi-circle
 - B an oval
 - C a rectangle
 - D a circle

6

prisms. These hallways have high ceilings in the shape of a **semi-circle**.

These shapes are in modern architecture, too. They add support, structure, and style, all at the same time.

Vocabulary

3 Match the words (1-6) with the definitions (A-F).

- | | |
|------------------|----------------|
| 1 __ semi-circle | 4 __ geometric |
| 2 __ ellipse | 5 __ prism |
| 3 __ rectangle | 6 __ vault |

- A a closed arc that resembles a flat circle
- B a shape with four sides and right angles
- C a shape that has three dimensions
- D a shape that is half of a circle
- E relating to the study of shapes
- F an arch that extends through a structure

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27

4 Write a word that is similar in meaning to the underlined part.

- 1 Meg's table is a round shape that is longer than it is wide.
o _ _ l
- 2 The building is a shape with four equal sides.
s _ _ a _ e
- 3 Many old buildings have curved shapes over the openings.
_ r _ h _ _
- 4 Amy wants to be a person who designs structures.
_ r _ _ i _ _ _ t
- 5 Laura's cup is a shape with two circular ends.
c _ _ i _ d _ r

5 Listen and read the blog. Why are shapes important nowadays?

Listening

6 Listen to a conversation between an architect and her client. Mark the following statements as true (T) or false (F).

- 1 _ The woman sent the man building designs.

Speaking

8 With a partner, act out the roles below, based on task 7. Then switch roles.

USE LANGUAGE SUCH AS:

- I'm calling about the ...*
- Why do we need the ...*
- The only downside is that ...*

Student A: Student B is an architect. Talk to him or her about the plans for your new building. Include:

- ceiling design
- space
- energy usage

Make up a name for the client.

Student B: You are an architect designing Student A's new building. Answer Student A's questions.

Make up a name for the architect.

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Listening

6 Listen to a conversation between an architect and her client. Mark the following statements as true (T) or false (F).

- 1 ___ The woman sent the man building designs.
- 2 ___ The client wants a bigger room.
- 3 ___ A vaulted ceiling saves energy.

7 Listen again and complete the conversation.

Architect: Keystone Architecture. This is Donna.

Client: Hi, Donna, it's Jim North. I'm calling about the 1 _____ that you sent me.

Architect: Is there a problem?

Client: Well, I'm wondering, why do we need the 2 _____ on the ceilings?

Architect: Oh, vaulted ceilings create more 3 _____.

Client: So they make rooms look 4 _____?

Architect: Yes, exactly. The only downside is that they can 5 _____ energy costs.

Client: In that case, I'd rather go with flat ceilings so we're not 6 _____ energy.

Student B: You are an architect designing Student A's new building. Answer Student A's questions.

Make up a name for the architect.

Writing

9 Use the conversation from Task 8 to complete the client's notes.

BUILDING DESIGN

Question: Why have _____?

Benefits: _____

Drawbacks: _____

Decision: _____

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