



7 / 117

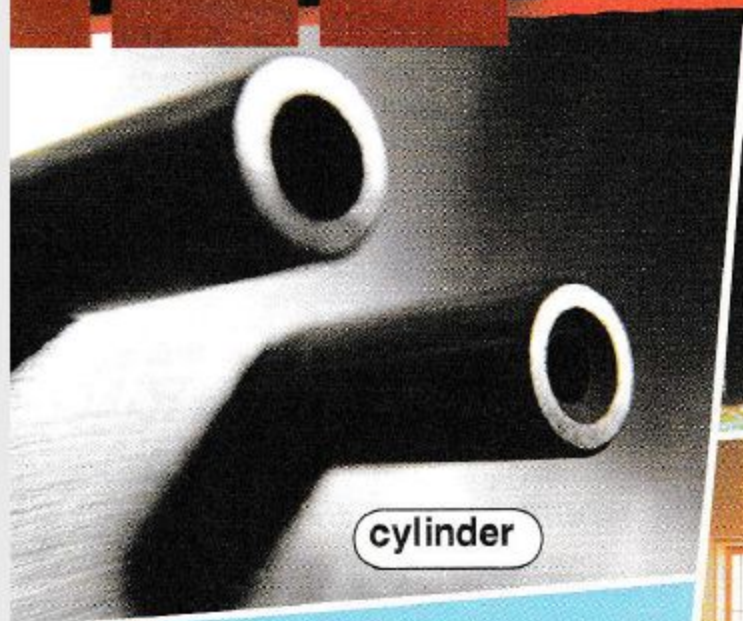


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2

Shapes



cylinder



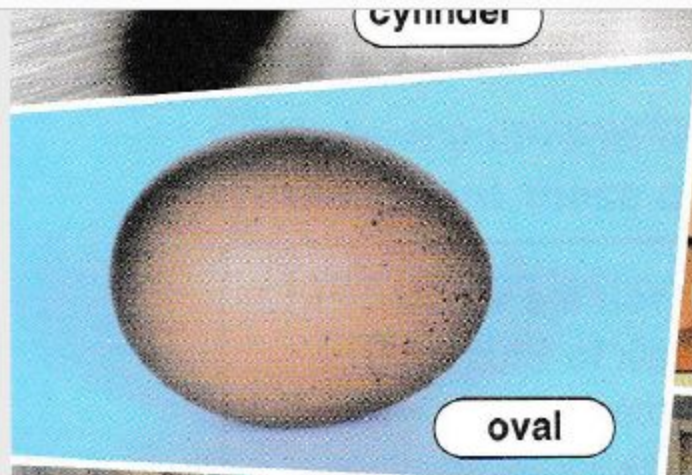
arch



The Roman Coliseum

The Importance of Shapes in Architecture and Engineering

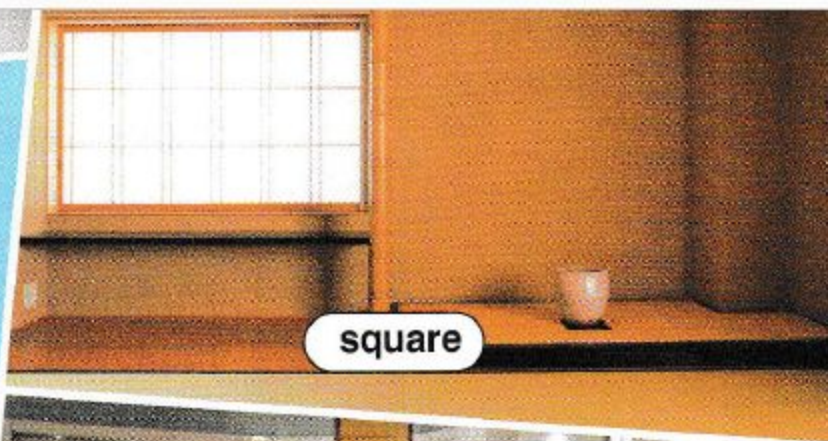
Most students learn about geometric



oval



semi-circle



square



ellipse

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

Get ready!



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

- Meg's table is a round shape that is longer than it is wide.
o _ _ l
- The building is a shape with four equal sides.
s _ _ a _ e
- Many old buildings have curved shapes over the openings.
_ r _ h _ _
- Amy wants to be a person who designs structures.
_ r _ _ i _ _ _ t
- 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).

- ___ 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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