

Aircraft design

1. Discuss in pairs. What does the painting represent? Which country do you think these *proverbs* come from and what do you think they mean?



Proverbs:
There is no flying without wings.
You cannot fly with wings made of butter.

2. In pairs, match the material with the correct definition.

Metal	is a silvery white, soft metal. It is the most abundant metal on Earth.
Carbon-fibres	is a, hard, shiny, opaque material with electrical and thermal conductivity.
Plastic	is soft, orange and malleable. It can be used to conduct heat and electricity.
Copper	is a reinforced plastic and extremely strong and light.
Aluminium	is composed of synthetic substances and is a thick liquid that hardens into a transparent solid.

3. Compare.

In pairs look at the pictures below and compare the two types of aircraft and contrast them.

What type of aircraft are they?

Which aircraft is **heavier**?

Which aircraft is **cheaper** to fly?

Which aircraft is **cheaper** to build?

Which aircraft is **safer**?



4. Pictionary.

In pairs, describe and draw!

1. Your teacher will give you a picture card.
2. Don't let your partner see your card.
3. Use the phrases in the boxes to describe your picture to your partner.
4. Your partner will draw a picture of your description.
5. Now listen to your partner and draw your picture in the space provided.
6. Compare your drawings with the original picture, how accurate were you?

Tip: To describe scientific phenomena in order to inform and describe characteristics, we often use the present tense. Use the present tense and these prepositions to help you:

Prepositions of place and movement:	Prepositional phrases:
above / below	at the end of
downwards / upwards	at the top of
through / around	at the front of
over / under	in mid air
	by way of
	on account of

e.g. Lightning first strikes the top of the aircraft before it moves around it. Because of the fact that it's made of

Speaking frame. Now tell your partner what would happen to your aircraft if it was struck by lightning, using the conditional.

If	Airbus an glider	was struck by lightning, it would	explode rip up burn up cause some damage	because it is made of.....
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Draw:

5. Watch *Electricity and lightning workshop: aircraft design*. Are the sentences true or false?

T / F

a. Metallic aircraft are not damaged by lightning because they can conduct electricity.	
b. Recent aircraft are made out of carbon fibre, not metal.	
c. Carbon fibre is completely resistant to a lightning bolt.	
d. Integrating a copper layer of metal into the carbon fibre doesn't protect it from lightning.	
e. Lighter planes consume less fuel.	