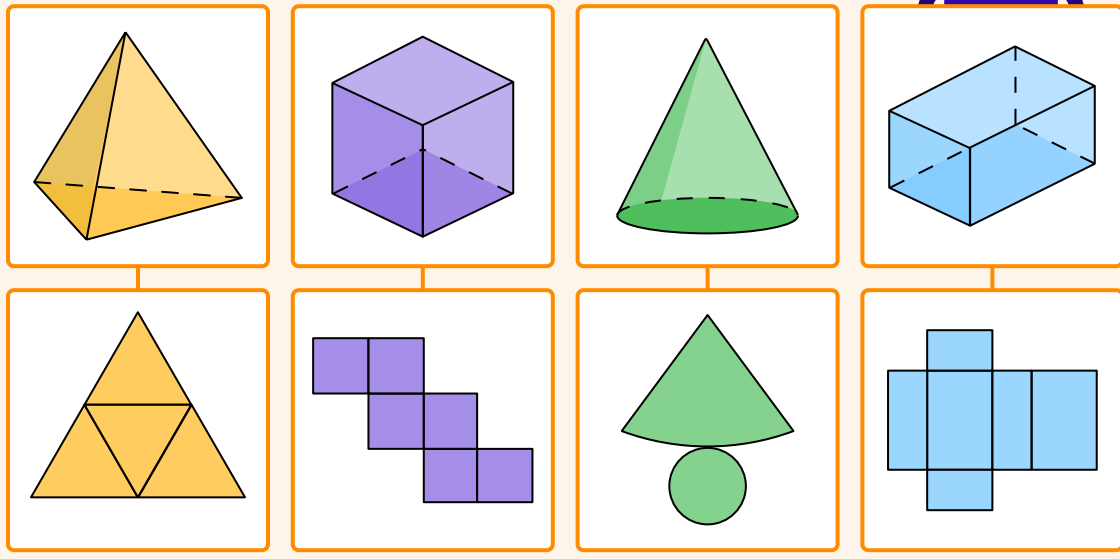




Nets from 3D Shapes

In **Nets from 3D Shapes** questions, you will be shown a 3D shape and asked to choose the net that it would make if it were unfolded!

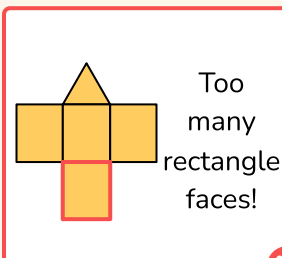
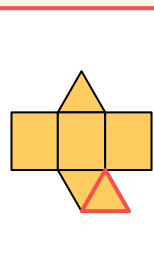
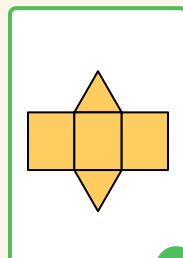
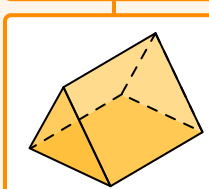


Method

1 Start by counting the **number** and **shape** of the faces in the net.

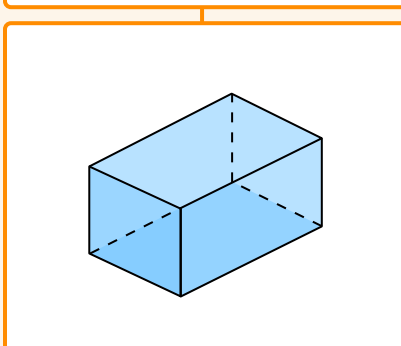
- Does the **total number of faces** on the net match the total number of faces on the 3D shape?
- Are there the correct number of each **shape** of face (circular faces, square faces...)?

Triangular Prism

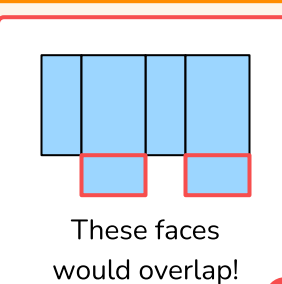
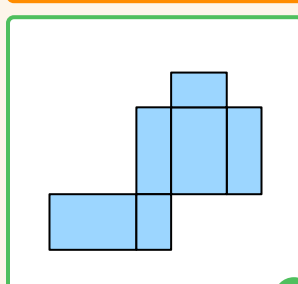


2 Check that the faces in the net are in the correct **position**.

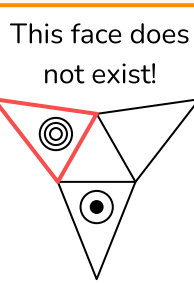
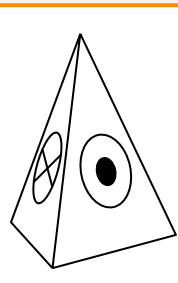
Cuboid



If certain faces are in the **wrong position**, it's **impossible** to recreate the 3D shape.



3 Now we can focus on the **3 rules** - **duds**, **opposites** and **orientation**!

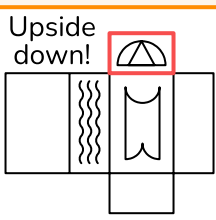
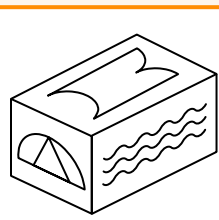
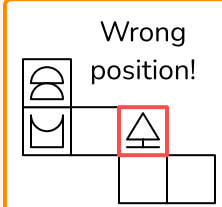


Duds:

- A dud net is a net that shows shapes that are **not seen** on the 3D shape.
- Shapes can look very similar, but they may have subtle differences in **colour**, **size** or **features**.

Opposites:

- Nets that break the opposites rule will show faces as being next to each other, when they should instead be **opposite each other**.



Orientation:

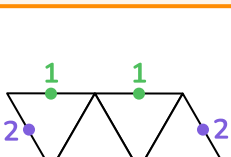
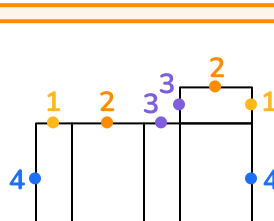
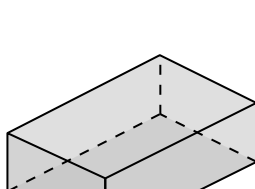
- Nets that break the orientation rule will have **upside down** faces or shapes that are pointing the wrong way.



Top Tips

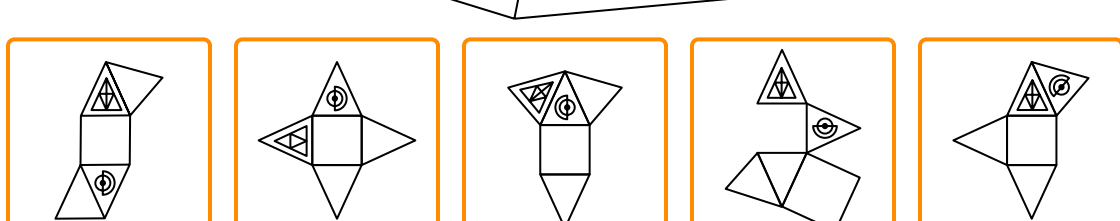
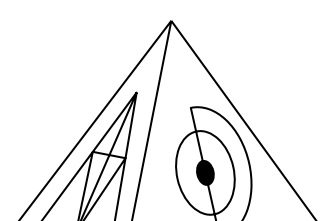
If you're struggling with the **orientation rule**, try to figure out if any of the shapes on the 3D shape are **pointing at** any other shapes.

Sometimes it can be difficult to work out which faces of the nets will **align** together. The **colour dot method** can be a useful tool to work out which faces will align, as shown below!



Example Question

Which net could be folded up to make this 3D shape?



1 First let's focus on the **number** and the **shape** of the faces in each net.

- The 3D shape is a **square-based pyramid**, which means that the net should be made up of **4 triangle faces** and **1 square face**.
- All of the nets have the same number of faces so we cannot rule out any answers yet.

2 Now let's look for faces that are in the **wrong position**.

We can rule out...

- **D** because the **square face** is in the wrong position.
- The square face forms the **base** of our 3D shape, so it needs to attach to the **bottom** of all the triangles.



3 Next, we can look for **dud nets**.



We can rule out...

- **B** because the **triangle shape** is missing the **straight line**.

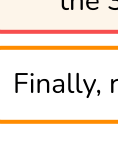
4 Next, we can look for nets that break the **opposites rule**.

We can rule out...

- We can rule out **A** because it shows the 2 shapes opposite each other, when they are actually **next to each other** on the 3D shape.



5 Finally, rule out any nets that break the **orientation rule**.



We can rule out...

- **C** because within the circular shape, the semi-circle is **parallel**, instead of **perpendicular** to the bottom side of the triangular face.

C is the correct answer! It is the only cube that can be made from the net.