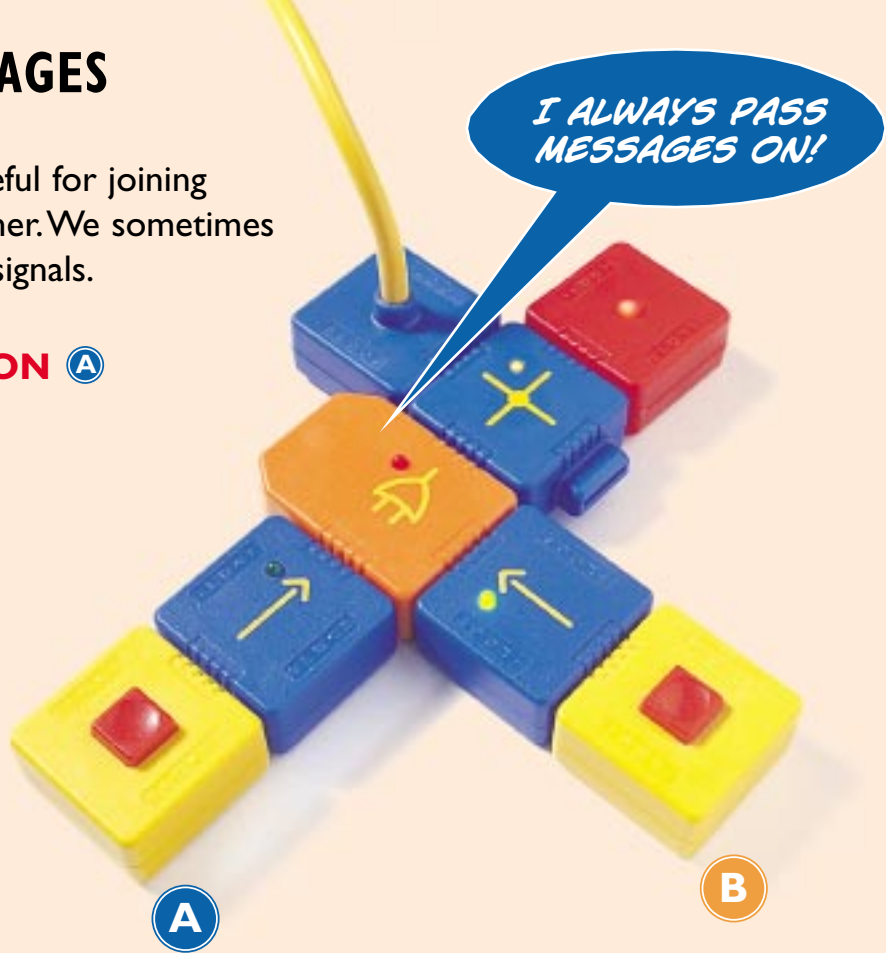


MIXING MESSAGES

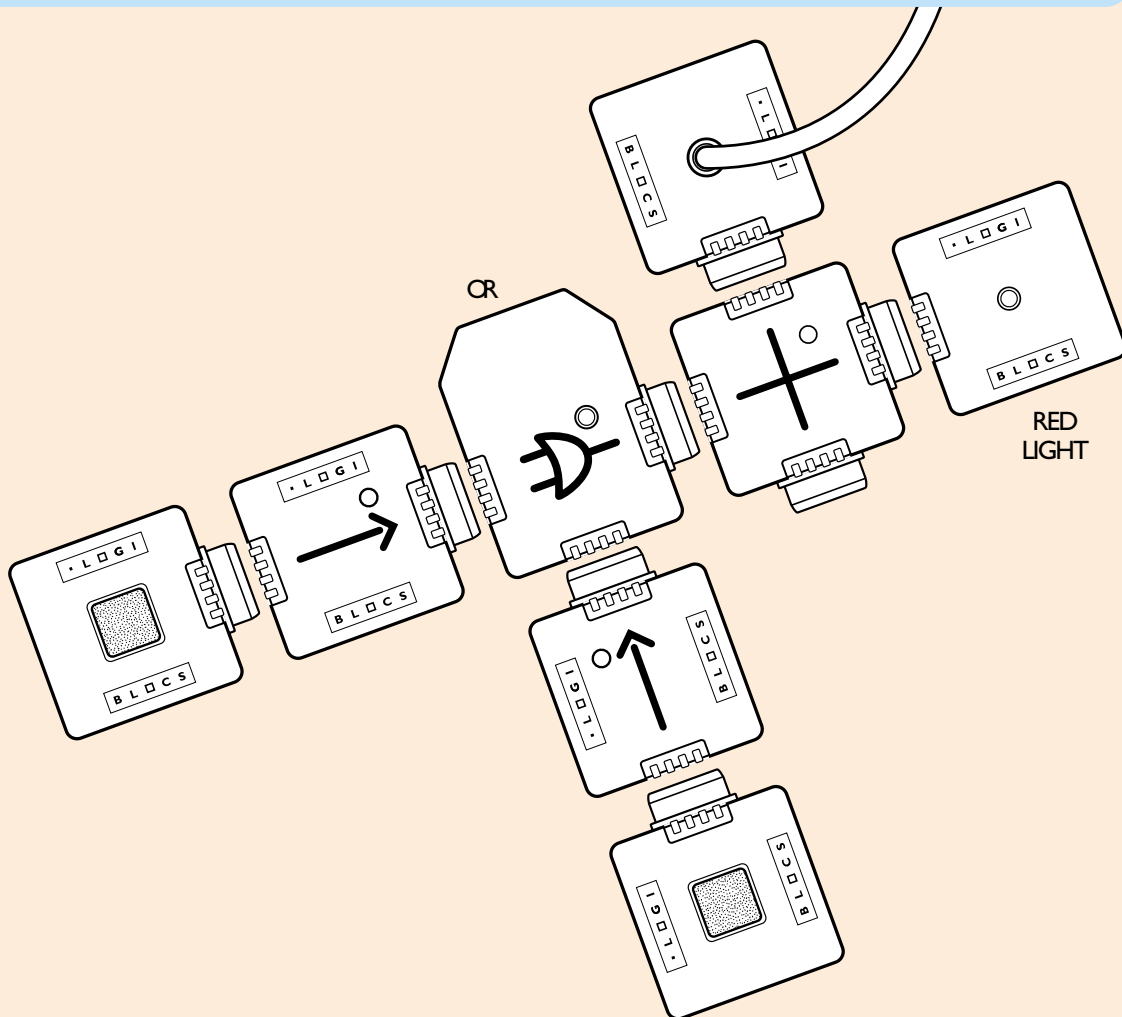
The **OR** block is useful for joining two messages together. We sometimes call these messages signals.

Press either **BUTTON A** or **B** to make the Red Light come on.

We often have to make choices. In this case we can turn on the light in more than one way.



? When can you make something work in more than one way? ?



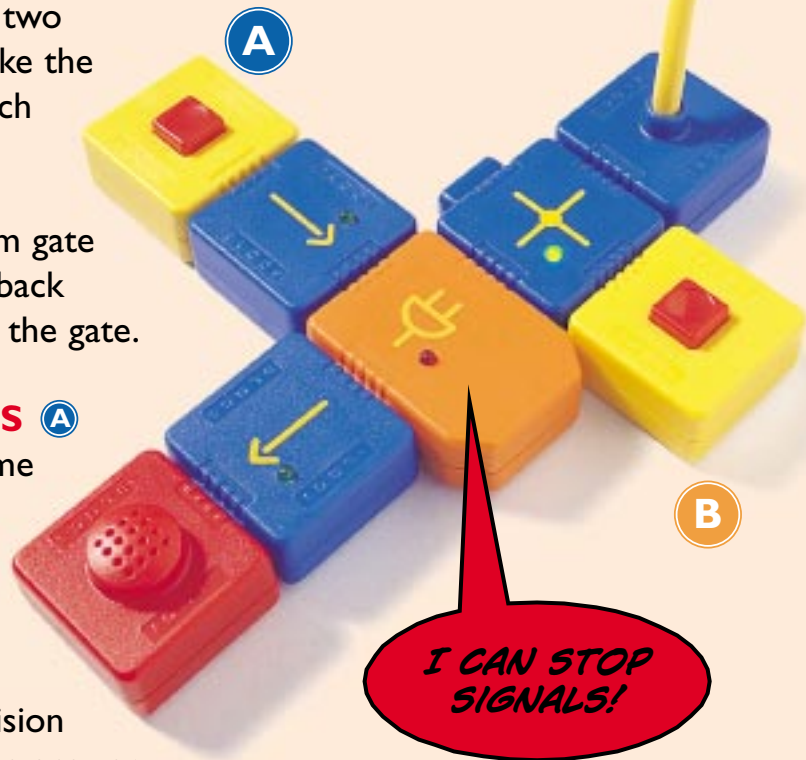
INTRODUCING AND GATES

The **AND** block joins two signal paths together like the **OR** block, but it is much more fussy.

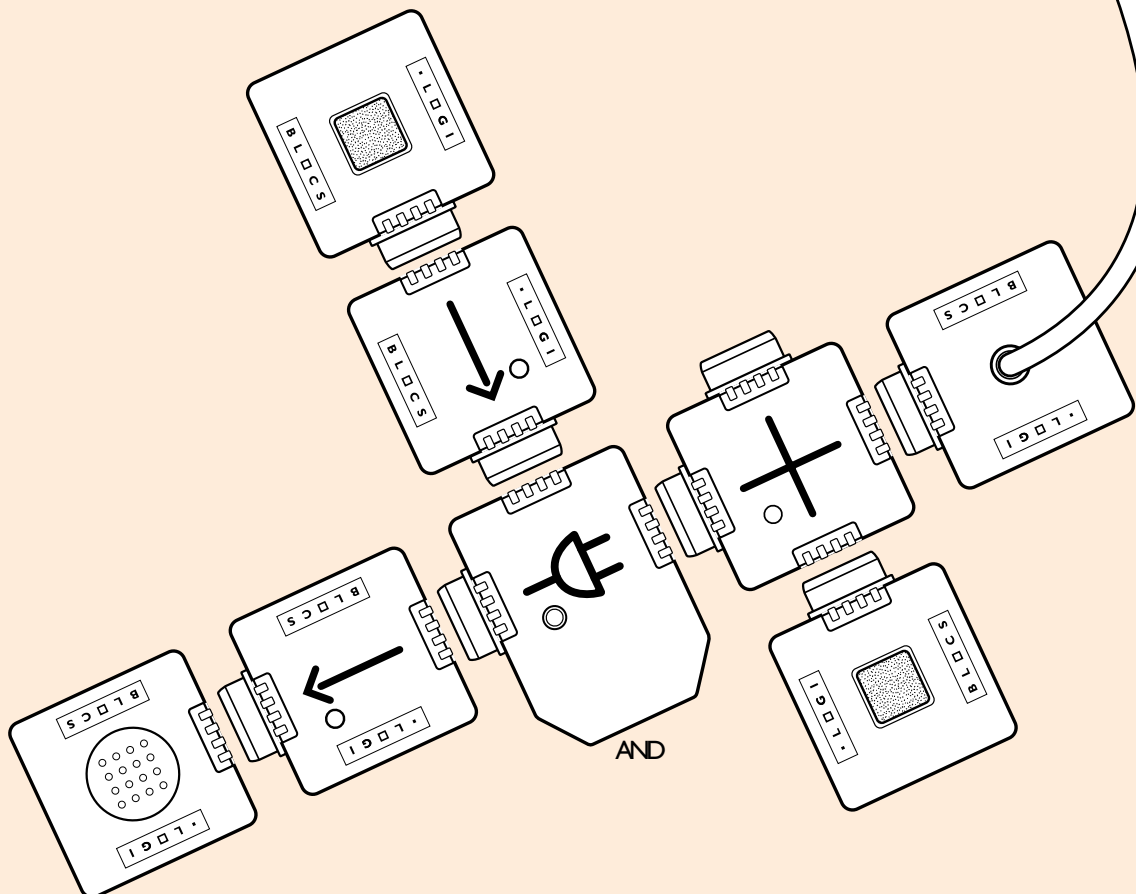
The **AND** is like a farm gate and holds the animals back until the farmer opens the gate.

Press both **BUTTONS** **A** and **B** at the same time to let the signal through.

This is the sort of decision where there is only one answer.



What systems depend on two things happening at once?

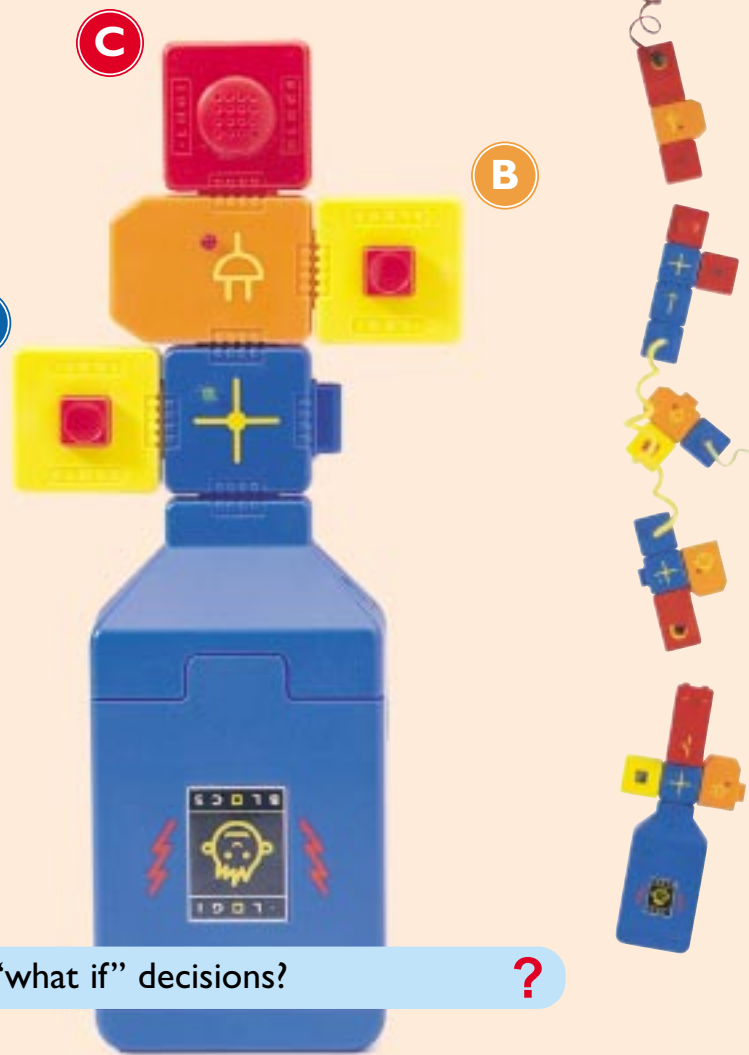


TRUTH TABLES

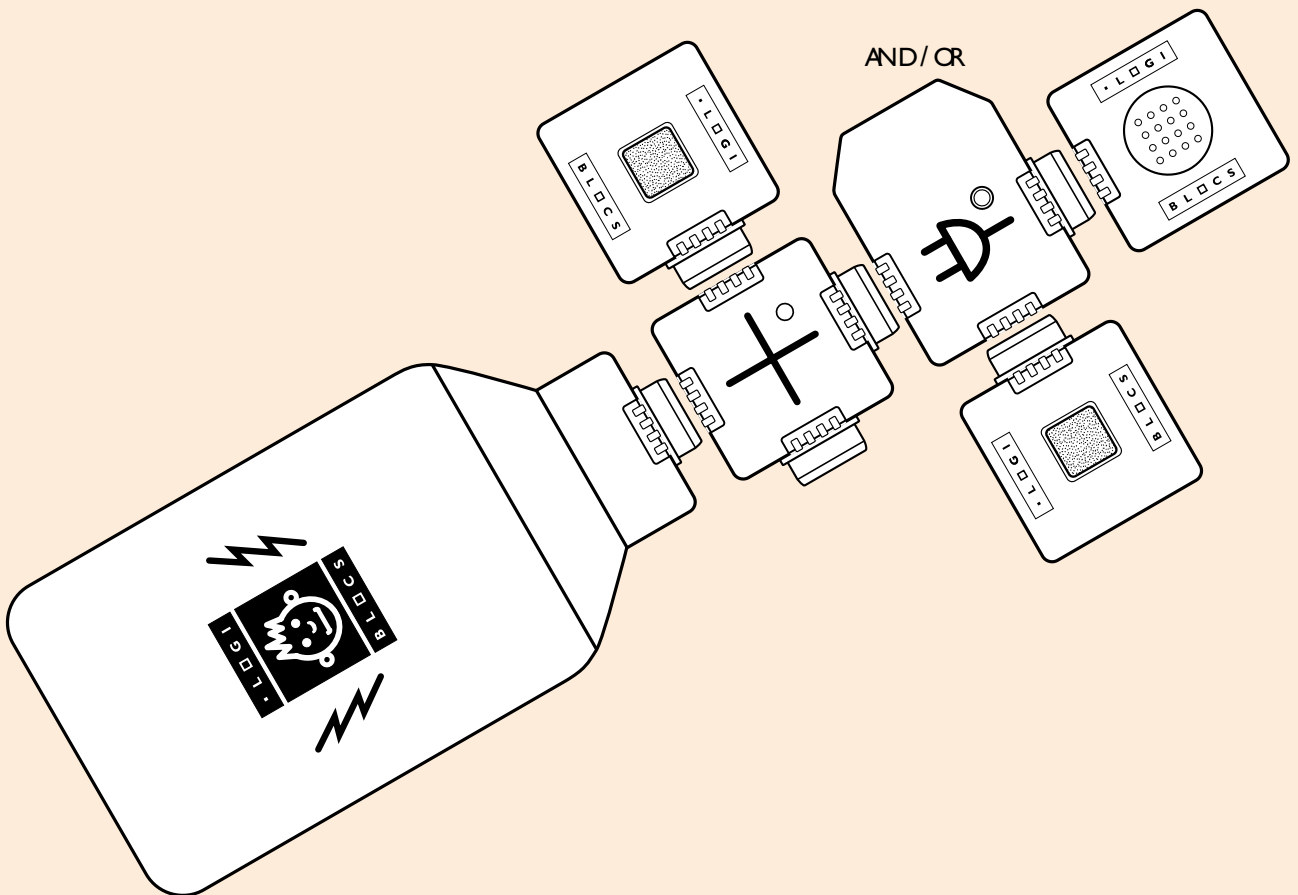
We can test how each Logibloc works and record the outcome in a table like this.

INPUT A	INPUT B	OUTPUT C
Button	Button	Bleep
Off	Off	Off
On	Off	Off
Off	On	Off
On	On	On

Now replace the **AND** with an **OR**. Then make your own table of results in the same way. Try to work out what the results will be before pressing the **BUTTONS**



When do you make “what if” decisions?



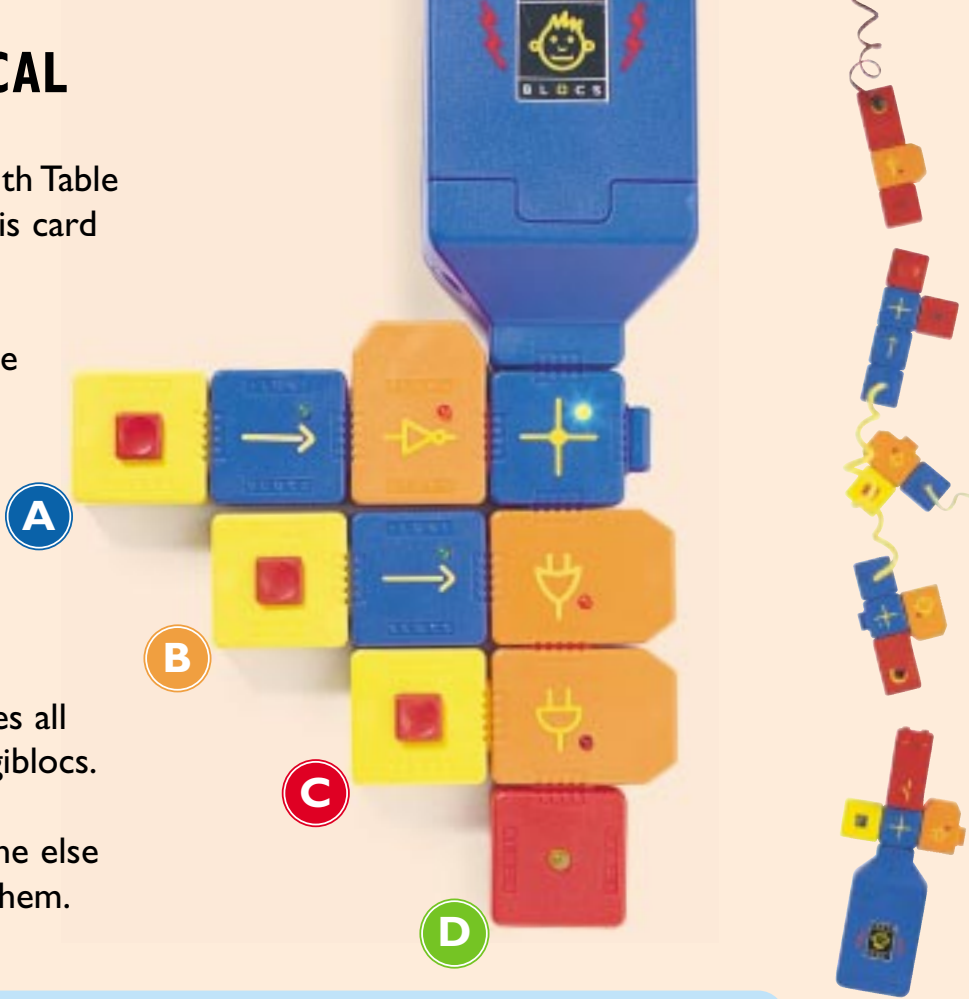
LET'S GET LOGICAL

Copy the incomplete Truth Table shown on the back of this card onto a piece of paper.

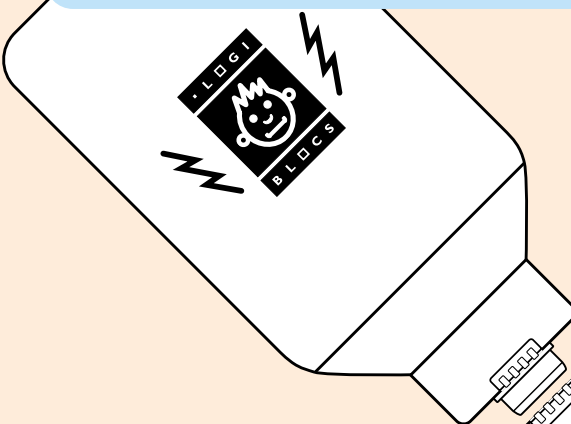
Try to work out what the answers are and write them down before pressing any of the **BUTTONS**.

This arrangement includes all three of the thinking Logiblocs.

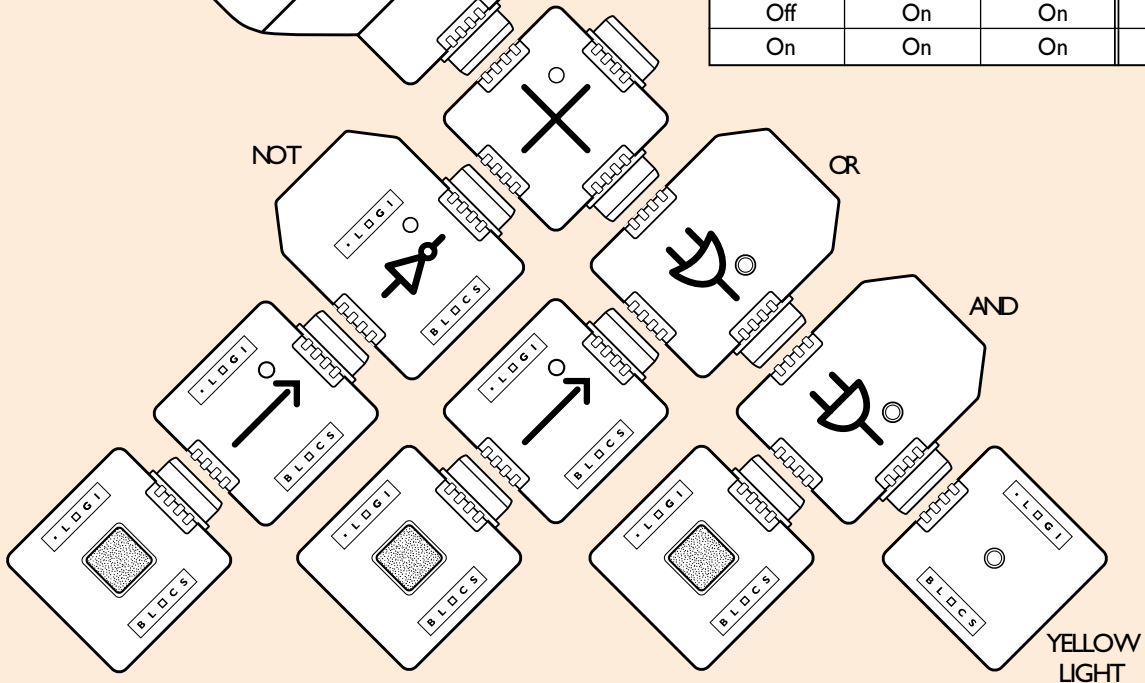
Try explaining to someone else the difference between them.



? What control systems need more than two inputs? ?



INPUT A	INPUT B	INPUT C	OUTPUT D
Button	Button	Button	Yellow Light
Off	Off	Off	
On	Off	Off	
Off	On	Off	
On	On	Off	
Off	Off	On	
On	Off	On	
Off	On	On	
On	On	On	



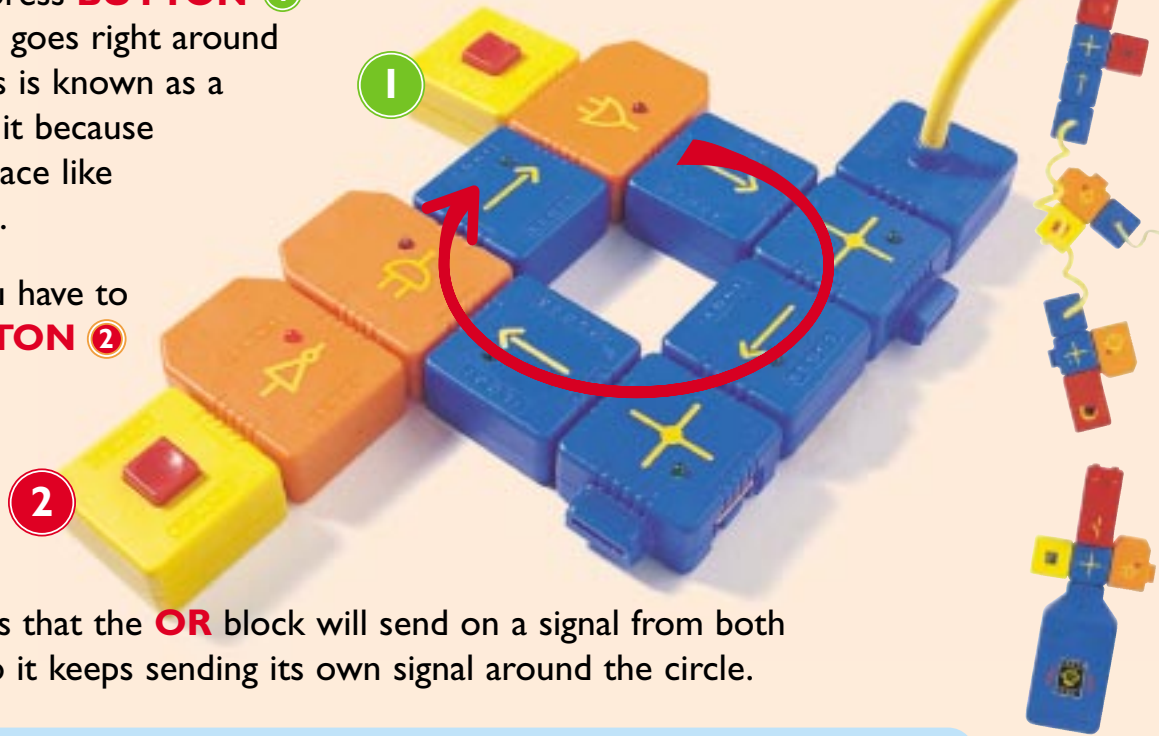
THE MEMORY CIRCUIT

See if you can work out how this system works.

When you press **BUTTON 1** the message goes right around the ring. This is known as a “latch” circuit because it locks in place like a door latch.

To reset you have to press **BUTTON 2** and break the ring.

2

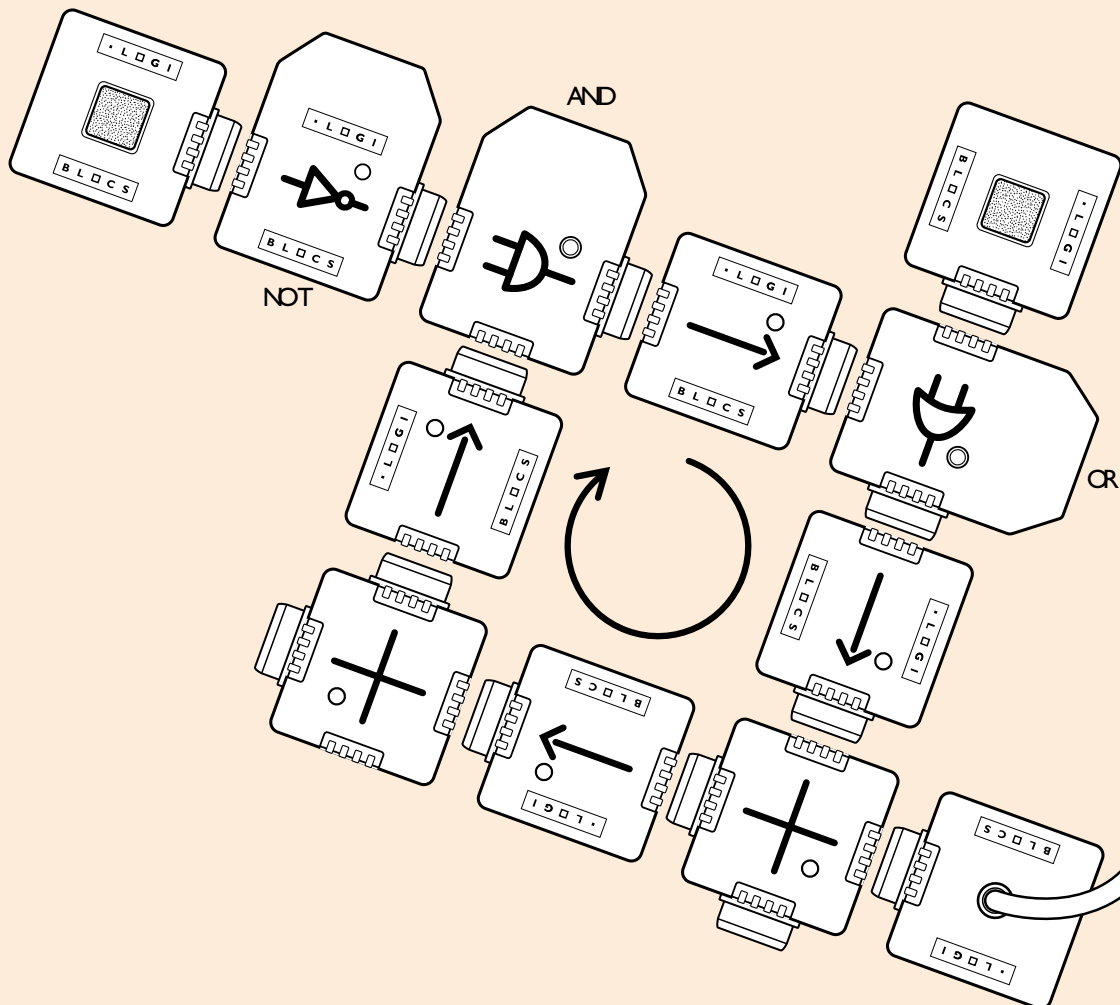


The secret is that the **OR** block will send on a signal from both its inputs. So it keeps sending its own signal around the circle.

?

When do we need to capture an event very quickly?

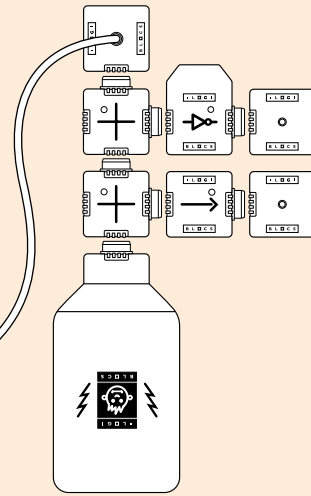
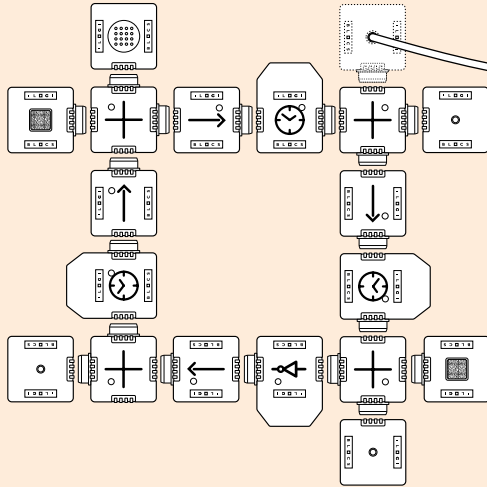
?



PICTURES AND DIAGRAMS

We can describe things in different ways. Pictures and diagrams are useful to show how to put things together.

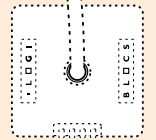
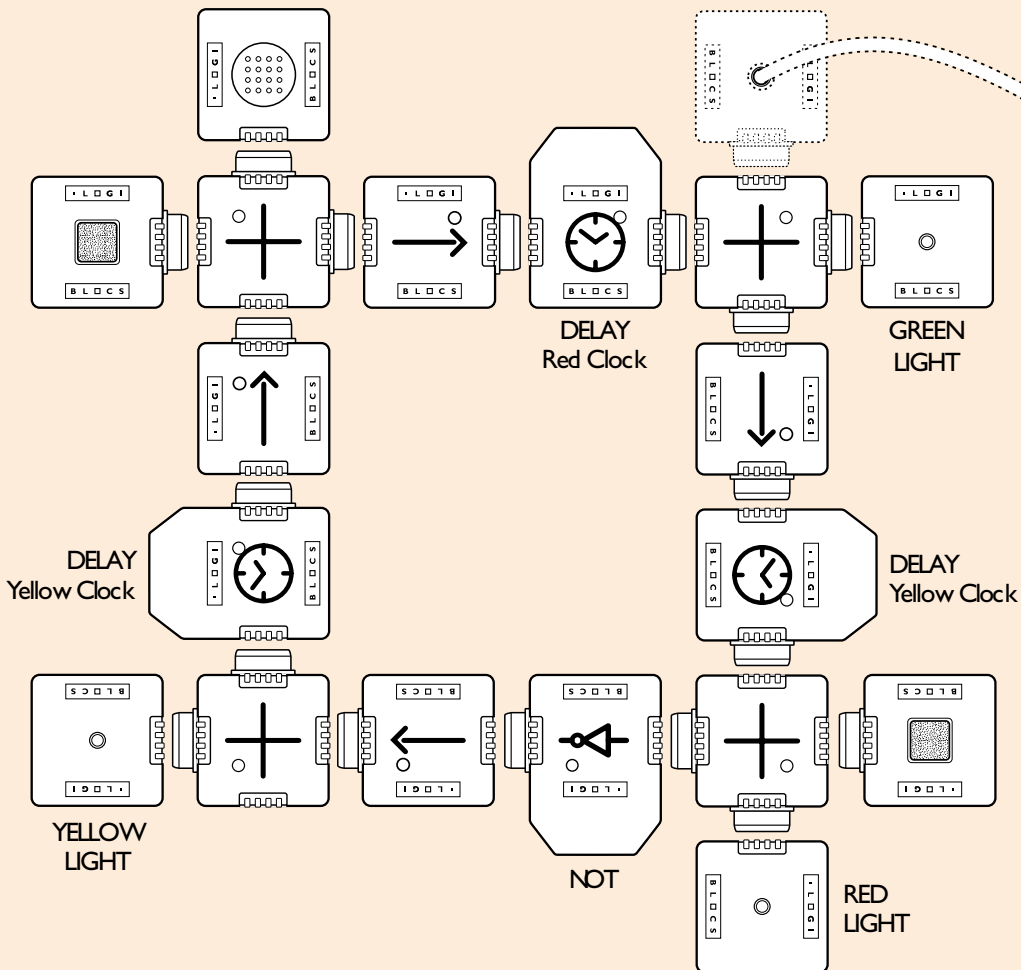
Just imagine yourself high up in the sky so that all you can see is the tops of the Logiblocs.



The drawings shown here are called Plan Views.



? What other ways are there to describe objects and designs? ?



This is the **FLYER** attached to the other half of the design on Card 23



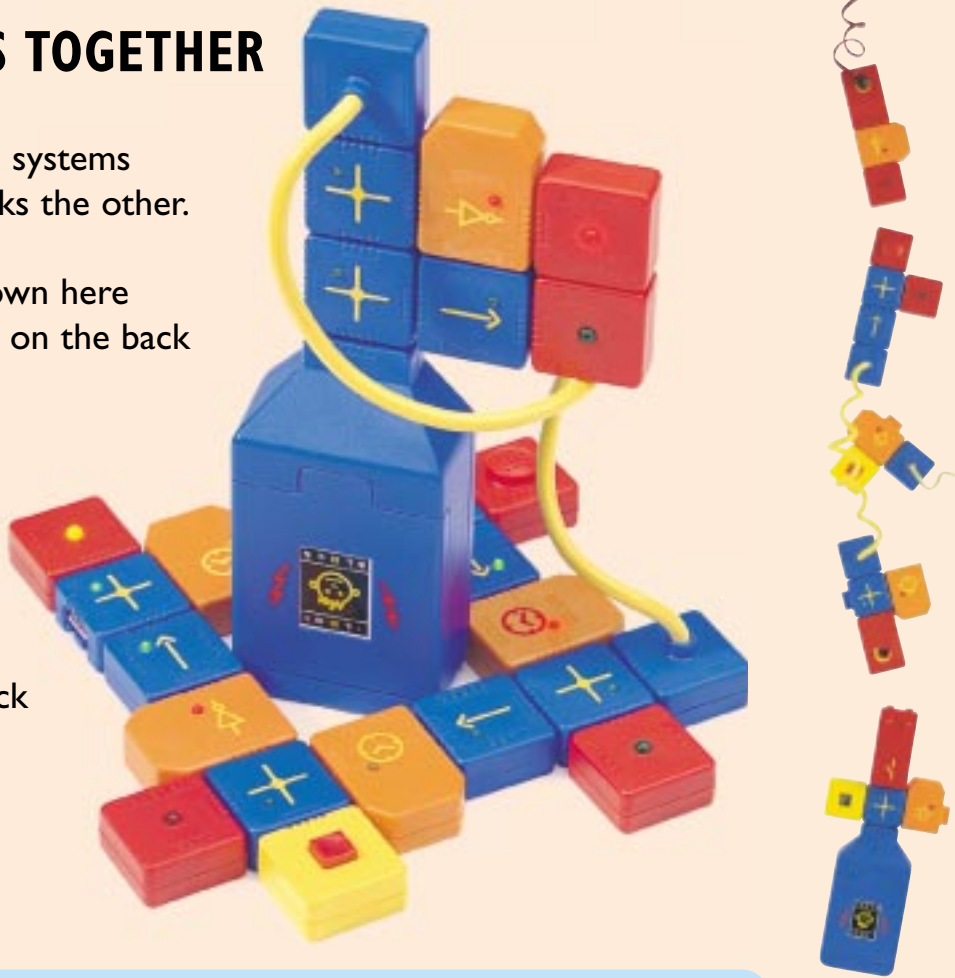
JOINING SYSTEMS TOGETHER

We can join two or more systems together so that one works the other.

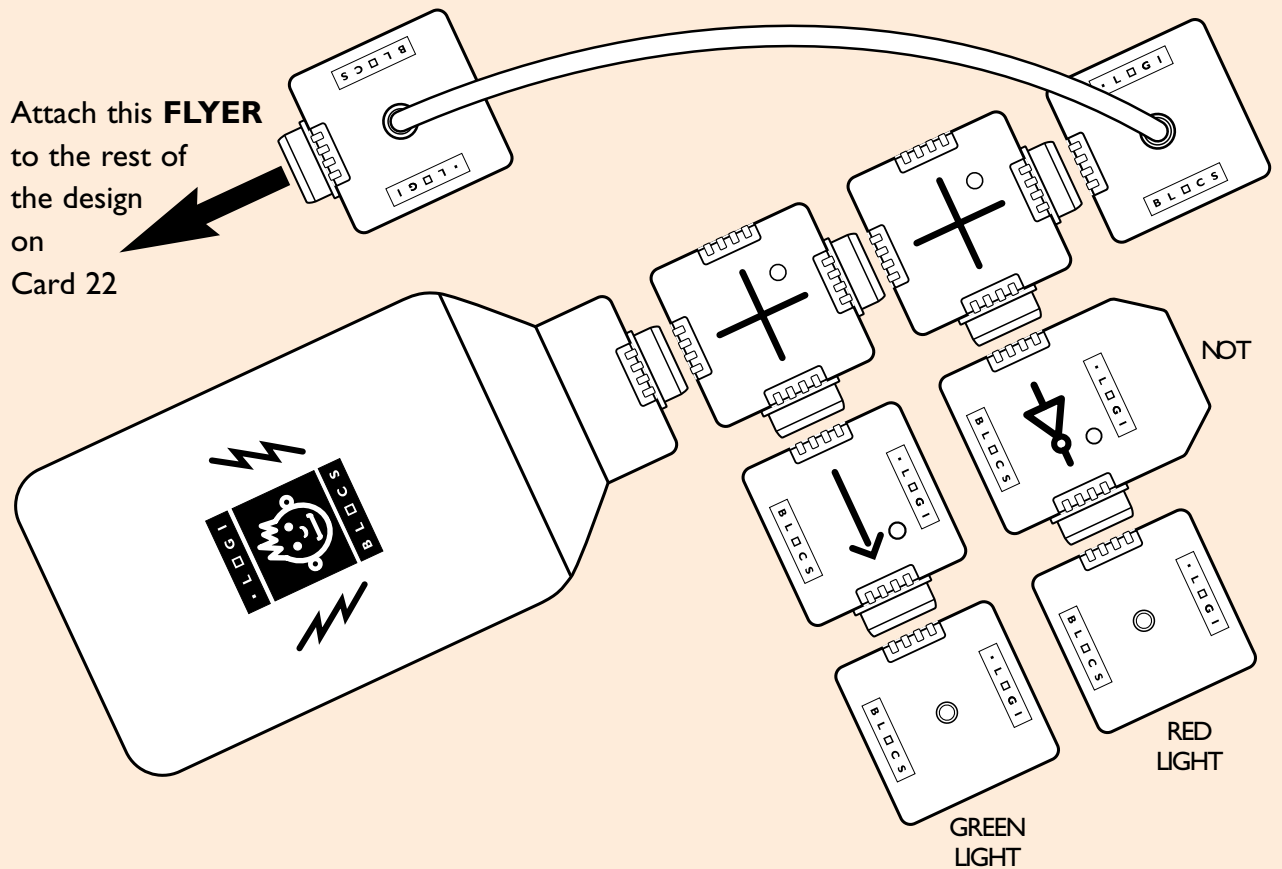
Make the two models shown here using the diagrams shown on the back of this card and Card 22.

Join them like this.

Ask someone else to check that you have put it all together exactly like the picture.

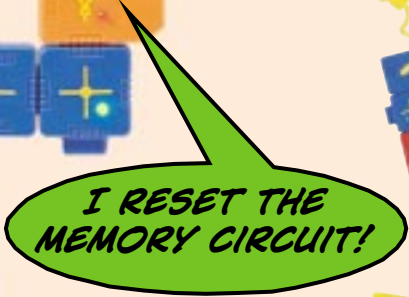


? What systems in your home control other systems? ?



PEDESTRIAN CROSSING

Here we are using several tricks to make a pedestrian crossing. Press the **BUTTON** to cross the road.



The Smiley-Face block is a **LONG DELAY** that goes off after about 10 seconds.

Can you think of ways to make this a safer system?

? What other systems might be controlled like this? ?

