STEAM for Good

Drones

Activity pack

STEAM for good

Drones

Kit list

- A4 Paper
- Paperclip

For Drones:

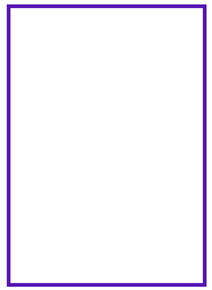
- Straws (or similar)
- String
- Tape
- Sissors

Plane 1

Making things fly isn't easy – consider animals and transport with flight capability – they have wings, propellers or blades of some kind, and those shapes can be streamlined to more efficiently slice through the air. Some things that fly go very fast, some can travel very far without any motion, and some need to spin or flap very quickly to stay in the air for any period of time.

Let's explore that with some experiments using paper. There are 5 different sets of instructions here for different kinds of flying paper creations. Have a go at building each one using the templates and instructions provided, and then experiment to find out which designs replicate animals, which replicate modes of transport, which design can travel the furthest on a single throw, which the fastest? Think about ways you can measure these things and what might impact their ability to fly well? Can you improve on any of the designs to make them more efficient? What would you need to consider to make them more efficient? What do you think makes the best design and why?

Have a go with these designs and then try some of your own. You could even challenge a friend to a competition to see who can create the best paper design for speed, distance or another measure of success you choose.



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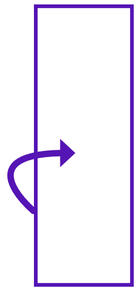

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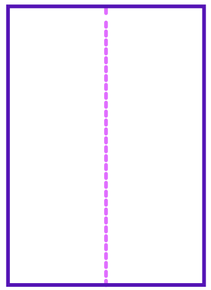

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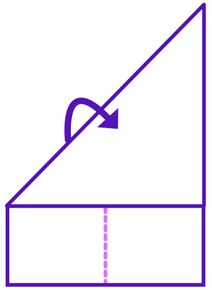

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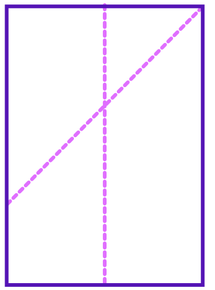

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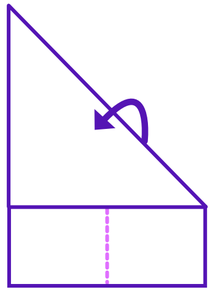

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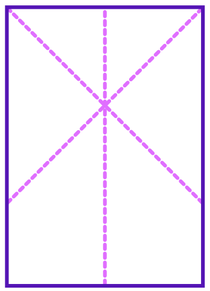

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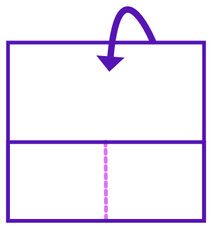

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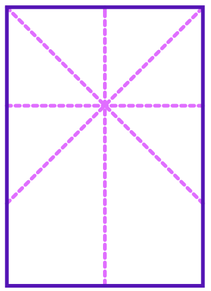

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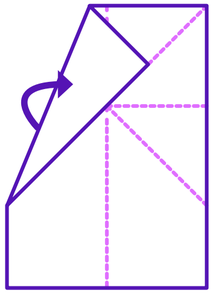

Step 10

STEAM for good
Drones

Have a go activities

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Starter drone game
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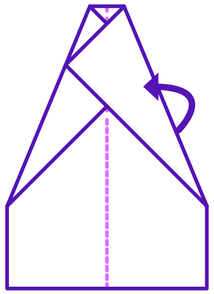
Plane 1



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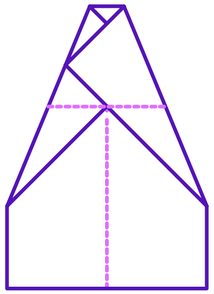

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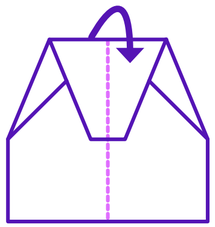

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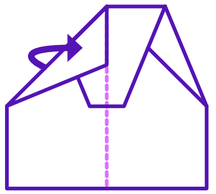

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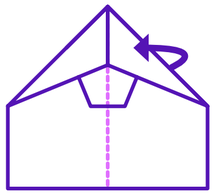

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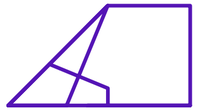

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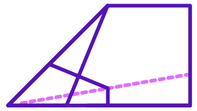

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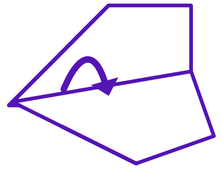

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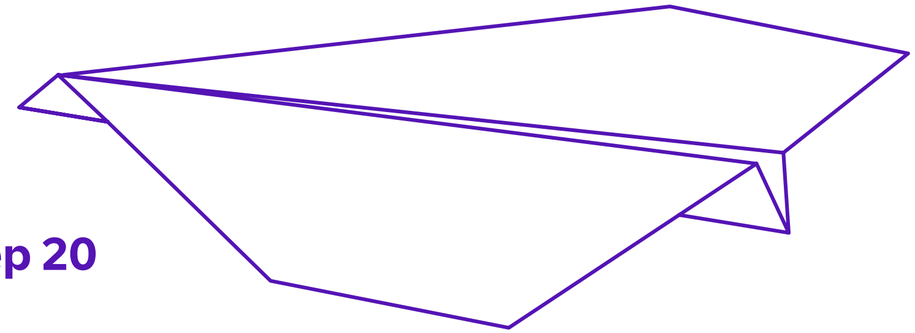

Step 20

STEAM for good

Drones

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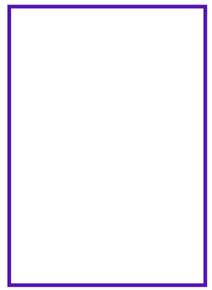

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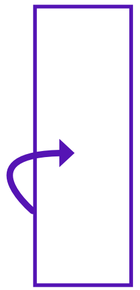

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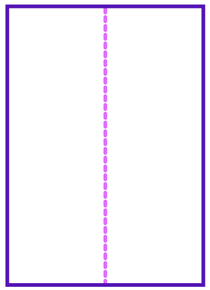

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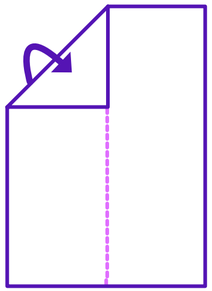

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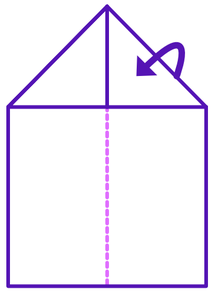

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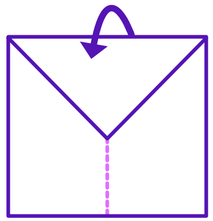

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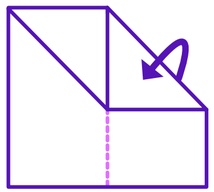

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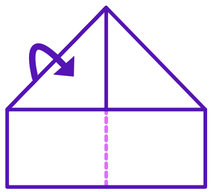

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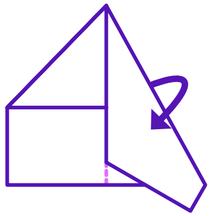

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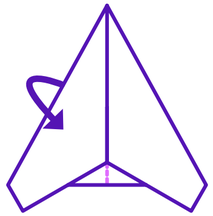
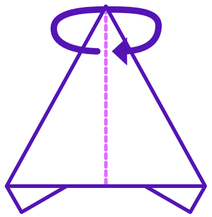


Step 10

STEAM for good
Drones

Plane 2



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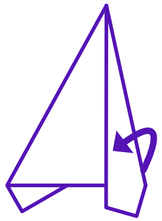

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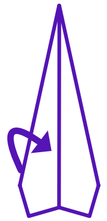

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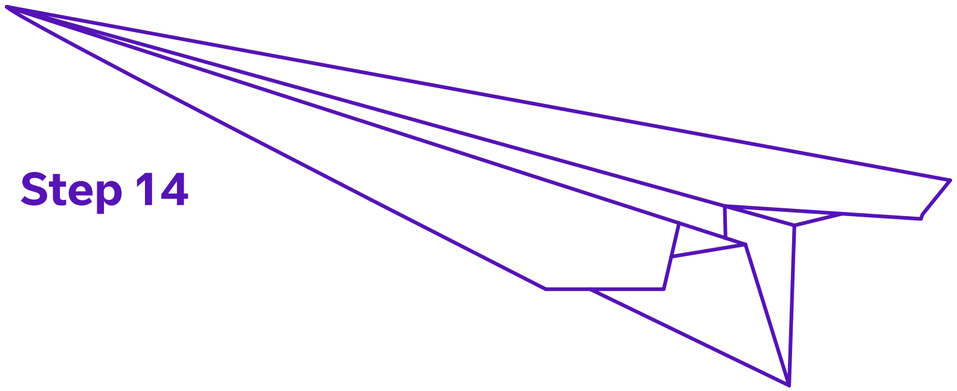

Step 14

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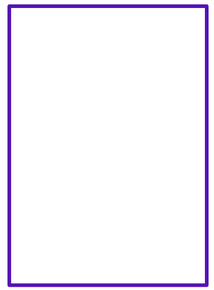

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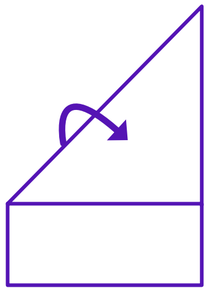

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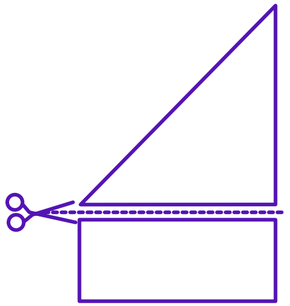
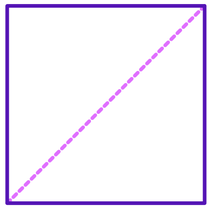


Step 3

* Dont throw the cut-out away



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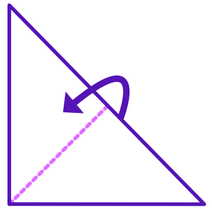

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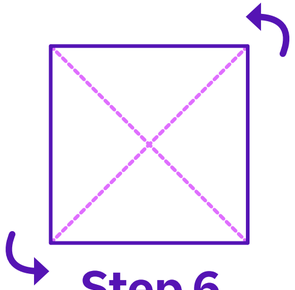

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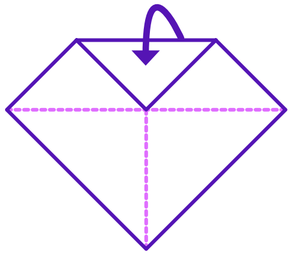

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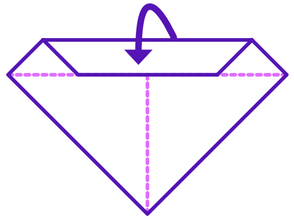

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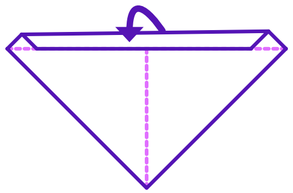
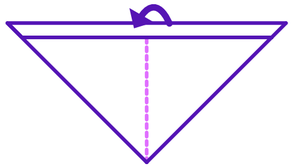


Step 9

STEAM for good

Drones

Plane 3



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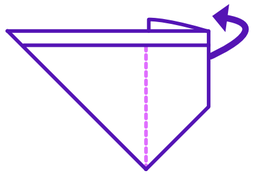

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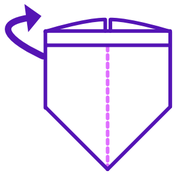

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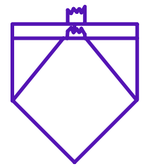
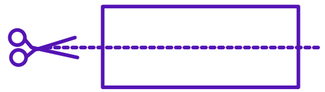


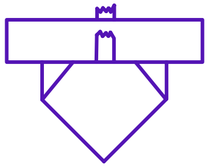
Step 13

* Use tape to stick ends together



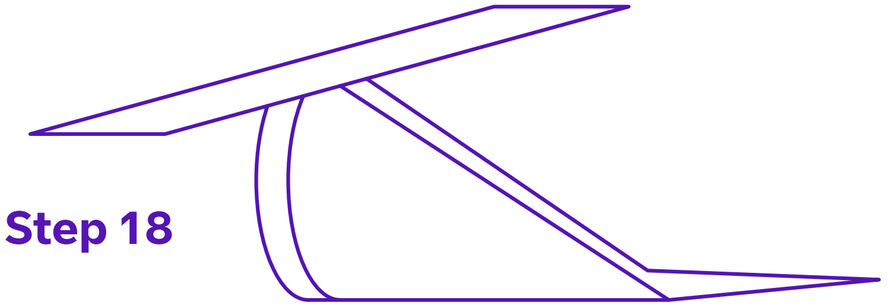
Step 14

Step 16



Step 17

* Use tape to stick the strip to the body



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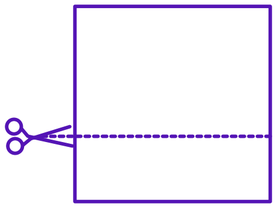
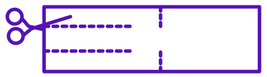
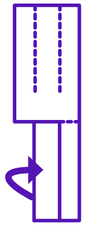


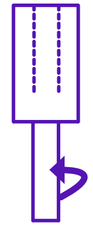
Step 1



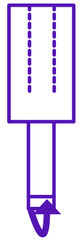
Step 2



Step 3



Step 4



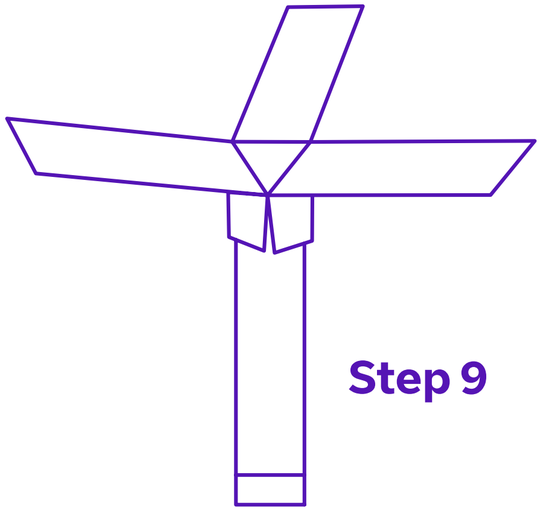
Step 5

Step 6

Step 7

Step 8

* Fold down along the line and then up the top



Step 9

STEAM for good

Drones

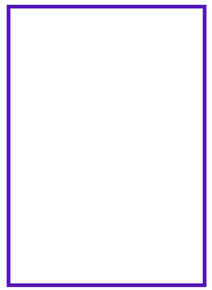
Plane 5

Have a go activities

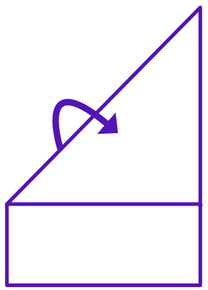
Use Scratch to create a drone flying game
tinyurl.com/ev4uzkvr

Starter drone game
tinyurl.com/j7pwhzw

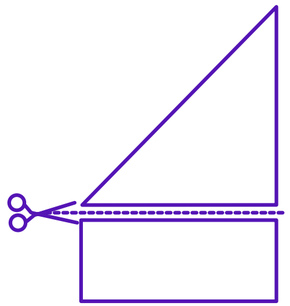
Need some inspiration? Take a look at the one we've made
tinyurl.com/fpmheznb



Step 1

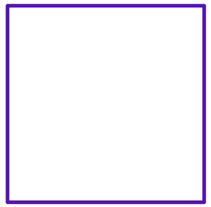


Step 2

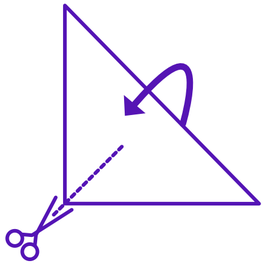


Step 3

* Do not throw away the cutout

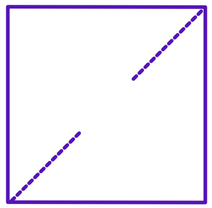


Step 4

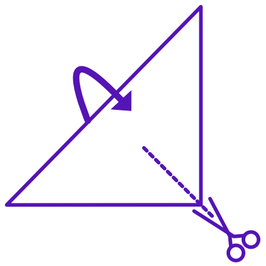


Step 5

Fold and cut along the line

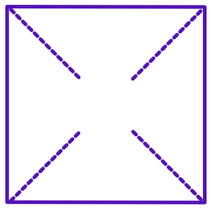


Step 6



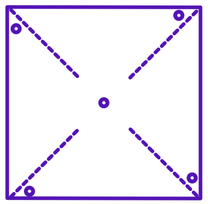
Step 7

Fold over and cut the corner



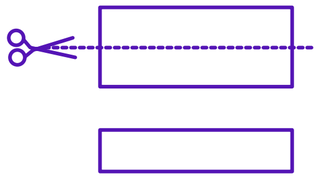
Step 8

The corners should now be cut



Step 9

Make holes where the dots are

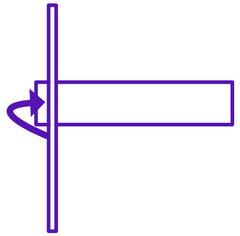


Step 10

STEAM for good

Drones

Plane 5



Step 11

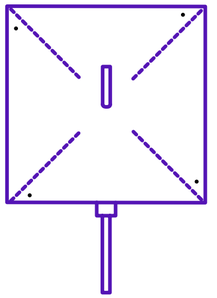
Get the strip and roll it with the straw inside

Step 12

Apply glue to the end and roll it closed

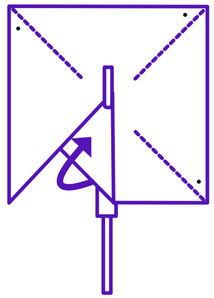
Step 13

The paper should move freely up and down



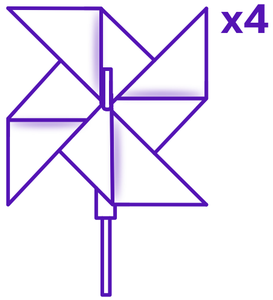
Step 14

Push the stick through the bottom, so the paper strip is under the drone

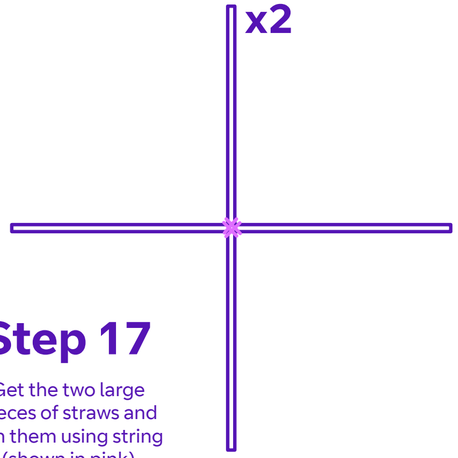


Step 15

Push the corner holes through the top of the stick

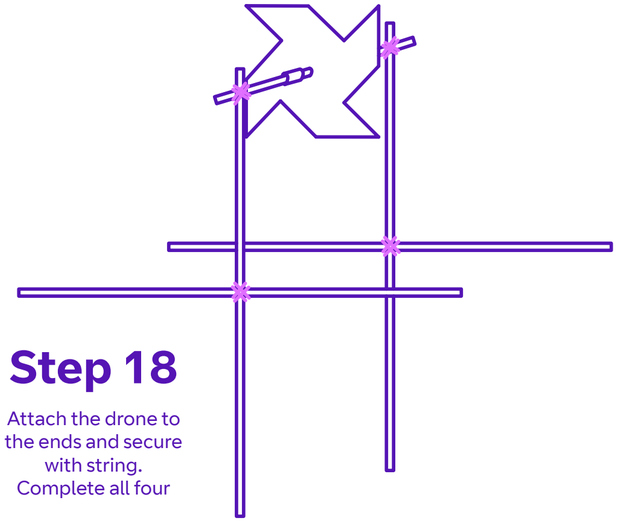


Step 16



Step 17

Get the two large pieces of straws and join them using string (shown in pink)



Step 18

Attach the drone to the ends and secure with string. Complete all four

STEAM for good
Drones

More things to explore

Find out more about the Future Flight Challenge bringing together technologies in electrification, aviation systems and autonomy to create new modes of air travel and capability
tinyurl.com/h5rcduj2

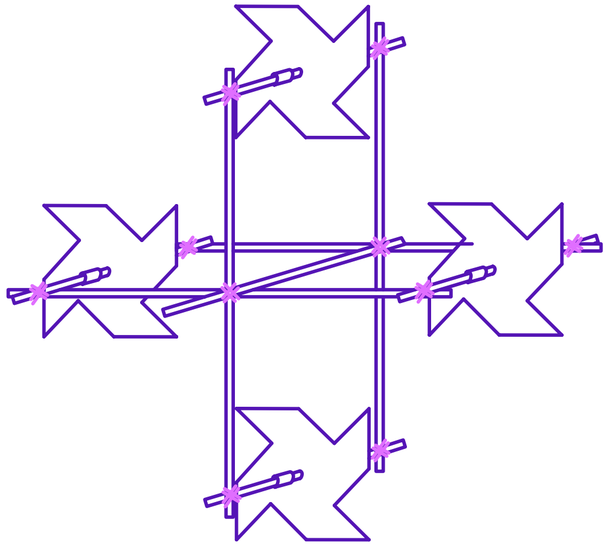
Visit the Royal Academy of Engineering for more activities
tinyurl.com/rpyfdnez

World record breaking indoor drone show
tinyurl.com/a76zy387

Take a behind the scenes to see how the world record indoor drone show was created
tinyurl.com/btu2uh4z

Skills development in Physical AI could cultivate lifelike intelligent robots
tinyurl.com/meesz542

Skills for physical artificial intelligence
tinyurl.com/9u5jns5x



Step 19

Attach a straw to the centre of the rig to increase stability

Plane 5

Step 20