

V-Twin
Engine

◀ SCAN FOR VIDEO

	ADVANCED		2.5-3.5 HOURS
	12-14 STRANDS		
	W: 4 IN × H: 4 IN × D: 1.3 IN		

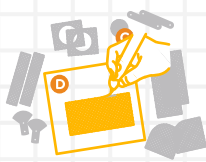


Many inventors tested and built automobiles during the 18th and 19th centuries. Gottlieb Daimler built one of the very first V-twin engines in 1889. It was used as a boat and vehicle engine. V-twin engines would go on to be featured in a number of different vehicles. In this challenge, create a V-twin engine model that really cranks!

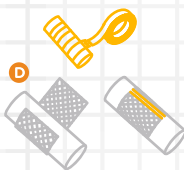
FOLLOW ALONG

FLIP CARD OVER FOR STENCIL ▶

- 1** Doodle all the flat pieces



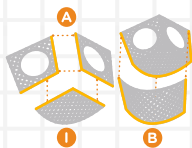
- 2** Cover a cardboard tube with masking or packing tape



- 3** Doodle all the way around and make x2 long cylinders



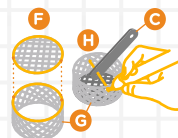
- 4** Join the A parts together as shown and then join the B parts together



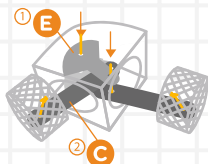
- 5** Place a short strand at the top of H and a long strand in the bottom hole of H. The two strands should be facing opposite directions.



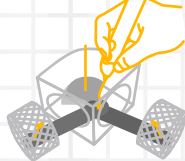
- 6** Join F to bottom of G, place strand (H) through C. Join strand (H) to sides of G. Repeat.



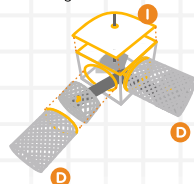
- 7** Sandwich E-C-C-E along the short strand in that order. Attach long strand to second E.



- 8** Fix E to short strand, so that sandwiched Cs can move freely.



- 9** Join D and I to casing, ensuring long strand pokes through casing.



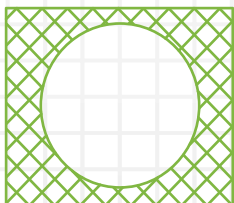


V-Twin Engine

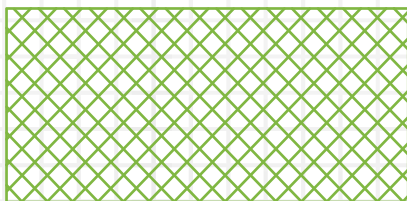
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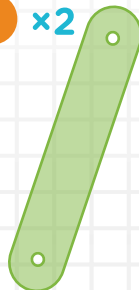
A x2



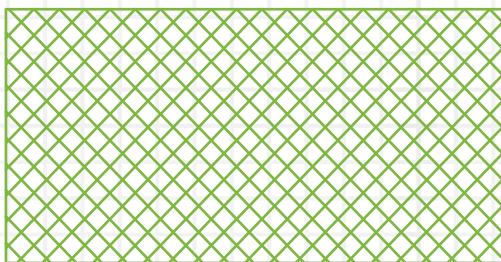
B x1



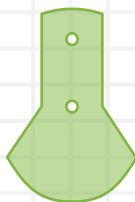
C x2



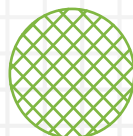
D x2



E x2



F x2



G x2

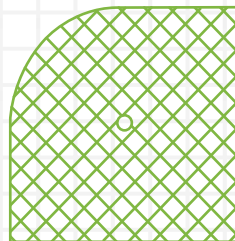


H Strands

x1 each



I x2



GO BEYOND! Check off your progress.

<input type="checkbox"/>	Now create more engines or design your own!
<input type="checkbox"/>	Choose a different engine such as a radial engine or a V6, then create it in 3D.
<input type="checkbox"/>	Share your Doodles with us! Upload them in the 3Doodler app.