

THE EPSRC/MRC CENTRE FOR DOCTORAL TRAINING IN
OPTICAL MEDICAL IMAGING (OPTIMA) PRESENTS

STEM ON A SHOESTRING: PEPPER'S HOLOGRAM WITH DR KIRSTY ROSS

In collaboration with Glasgow Science Festival



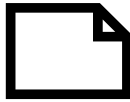
PEPPER'S HOLOGRAM



@DRKIRSTYROSS
OUTREACH OFFICER FOR
OPTIMA CDT

1 YOU NEED THE FOLLOWING:

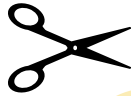
Thin clear plastic
(e.g. toy packaging)



Fine tipped pen



Scissors



Sticky tape



A phone or tablet



5 Google '3D hologram' on
YouTube & play a video.

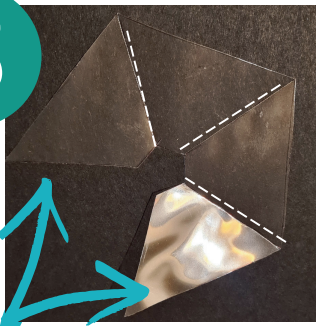
6 Place your pyramid on
top of the display, bend
down & watch the magic
of science!

7 To see it in action,
check it out here:
bit.ly/OPTIMAHolo



2 Trace the template shape
(next page) onto the plastic
sheet with the fine tipped
pen. (Dashed line=fold line)

3 Cut the
shape from
the plastic
with scissors
& score along
dashed lines.



4 Join these edges with sticky
tape to make a pyramid.

EXTENDING THE ACTIVITY...

Why not try:

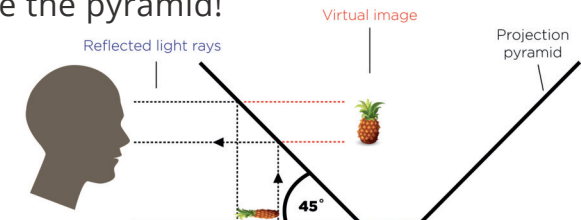
- Using a larger display,
like a tablet or TV??
- Making your own 3D
hologram video in
Powerpoint?
 - bit.ly/3DHoloHowTo
- (your ideas here...)

CAUTION

Scissors and the edges of the plastic can be sharp, so be careful. 3D hologram videos can be data-hungry, so use WiFi to view them.

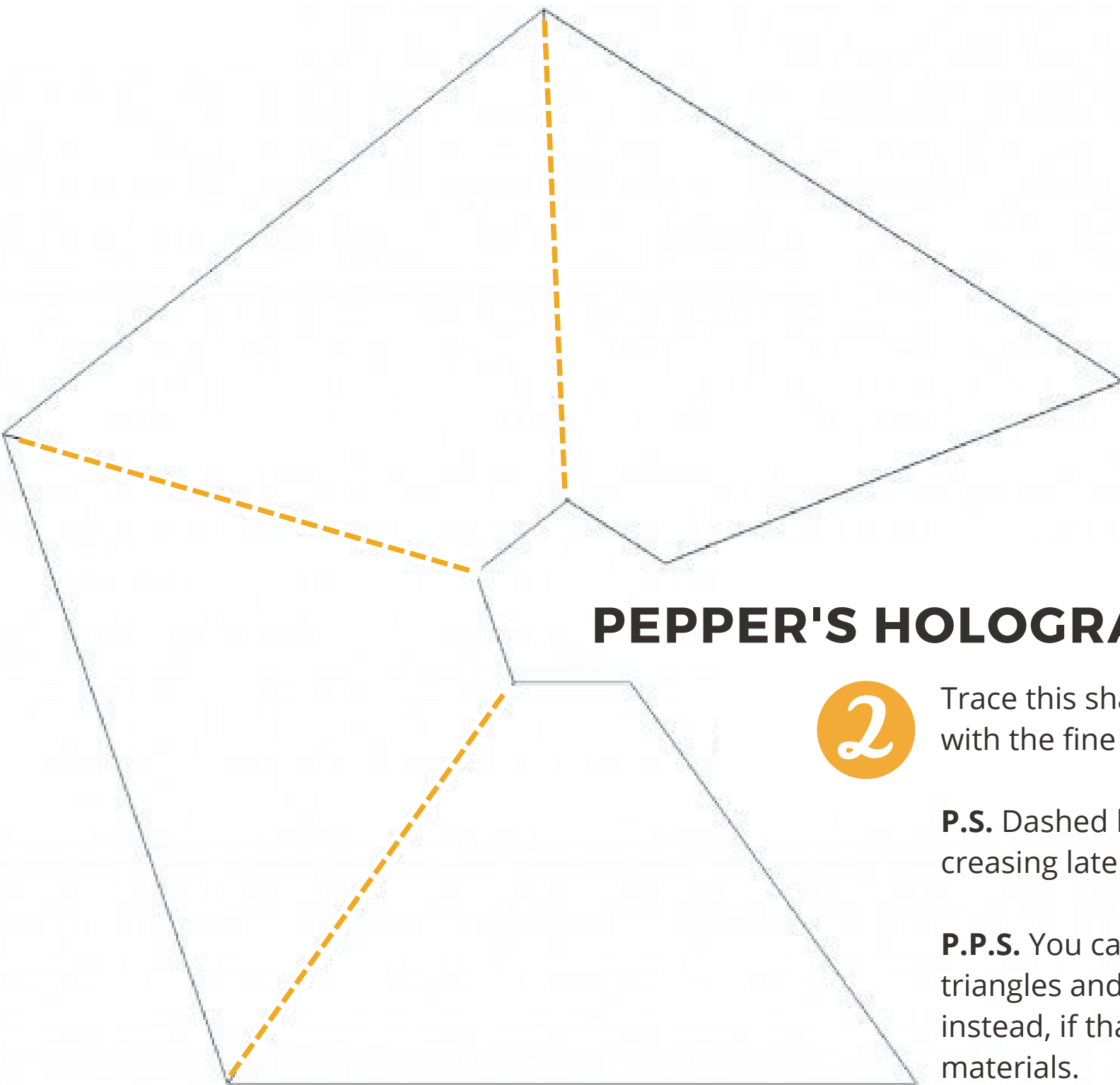
THE SCIENCE

Light always moves in straight lines, until it hits a surface that **reflects** the light in a different direction. The light from the screen hits the pyramid and reflects towards your eye. Your brain then assumes the light has moved in a straight line and builds a virtual image inside the pyramid!



THE APPLICATIONS

We can direct light inside medical imaging devices, fibre optic endoscopes & microscopes using special surfaces to **reflect** the light in different directions.



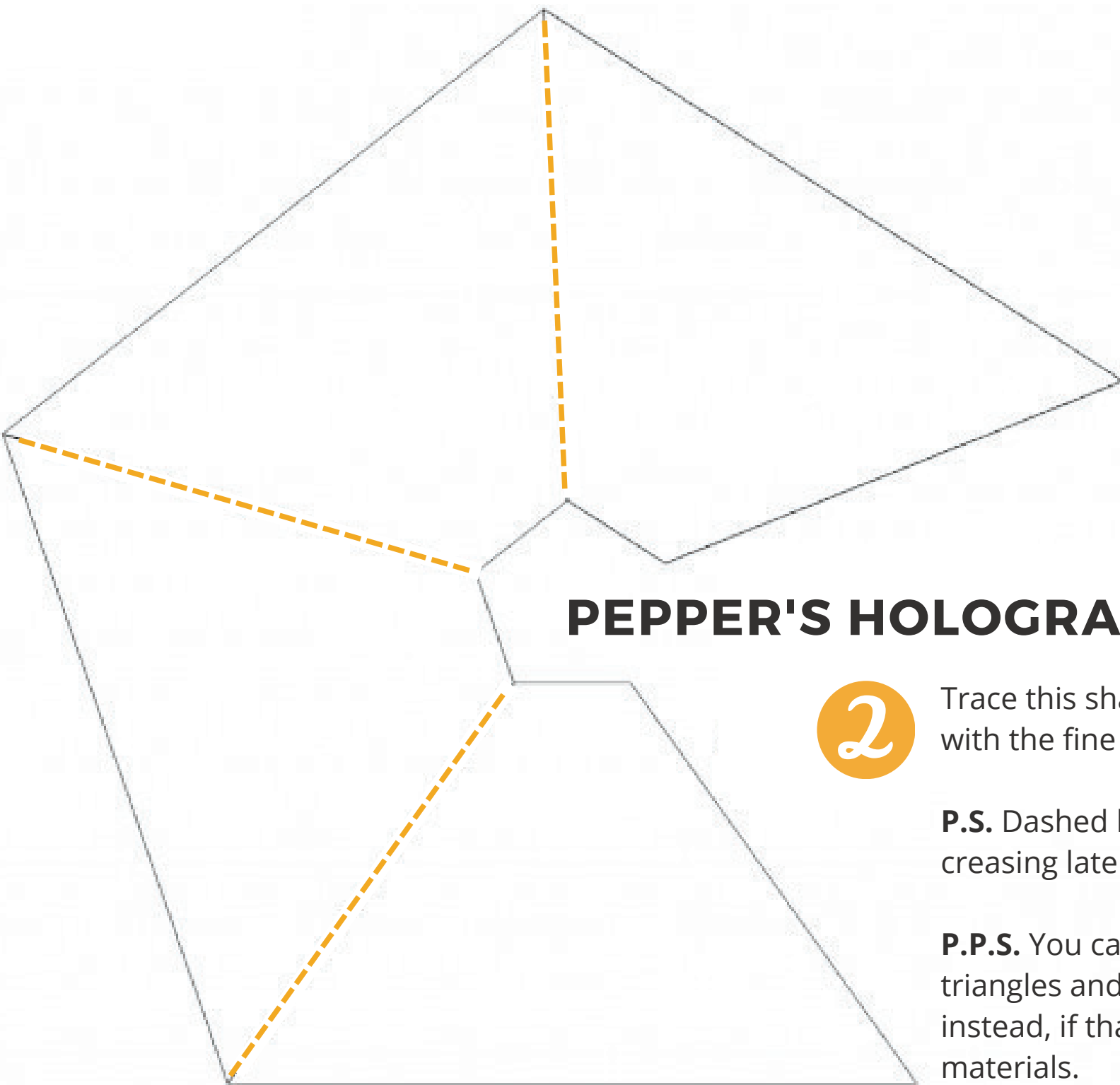
PEPPER'S HOLOGRAM TEMPLATE

2

Trace this shape onto the clear plastic with the fine tipped pen.

P.S. Dashed lines are for scoring and/or creasing later.

P.P.S. You can also cut out 4 individual triangles and tape them together instead, if that makes better use of your materials.



PEPPER'S HOLOGRAM TEMPLATE

2

Trace this shape onto the clear plastic with the fine tipped pen.

P.S. Dashed lines are for scoring and/or creasing later.

P.P.S. You can also cut out 4 individual triangles and tape them together instead, if that makes better use of your materials.