

MEI

Innovators in
Mathematics
Education



TEXAS
INSTRUMENTS

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Paper folding on the TI-Nspire

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Paper Folding on the TI-Nspire

Parabola

Start with an A4 sheet of paper

1. Fold it in half long-ways (to create the y -axis) and draw this in with a pen.
2. Mark a point on the fold a couple of inches from the bottom edge.
3. Fold the bottom edge so that it goes through the point and is perpendicular to the vertical fold (to create the x -axis) and mark this with a pen.
4. Make repeated folds so that the bottom edge goes through the point – these can be at any angle, not necessarily through the point.

The envelope of lines created should form a parabola.

On TI-Nspire:

1. Press  and select: **1 New Document**.
If Nspire asks “Do you want to save Unsaved Document”? select **No** and press .
2. Select **2 Add Graphs**.
3. Press  **8 1 2 Point On**, click on the y -axis to select it and again on the axis to add a point.
4. Press  **8 5 2 Reflection**, click on the point to select it and then the x -axis to reflect it.
5. Press  **8 4 1 Perpendicular**, click on the reflected point and the y -axis.
6. Press  **8 1 2 Point On**, click on the perpendicular line to select it and again on the line to add a point.
7. Press  **8 4 3 Perpendicular Bisector**, click on the reflected point and the original point.
8. Press  **8 5 4 Geometry Trace**, select the perpendicular bisector then drag the point along the perpendicular line.

Ellipse

Start with an circular sheet of paper

1. Mark a point near the circumference.
2. Make repeated folds so that points on the circumference go through the point.

The envelope lines created should form an ellipse.

On TI-Nspire:

1. Press  and select: **1 New Document**.
If Nspire asks “Do you want to save Unsaved Document”? select **No** and press .
2. Select **3 Add Geometry**.
3. Press  **8 5 1 Circle**, click on the screen for the centre and again for a point on the circumference.
4. Press  **4 2 Point On**, click on the circle to select it and again to add a point.
5. Press  **4 1 Point** and add a point inside the circle.
6. Press  **7 3 Perpendicular Bisector**, click on the new point and the point on the circumference.
7. Press  **3 1 Geometry Trace**, select the perpendicular bisector then drag the point around the circumference.