



DIGIFOLD

REIMAGINING GAMING EXPERIENCE THROUGH PAPER INTERACTIONS

ABOUT THE PROJECT

Digifold is an interactive system that merges the digital and physical worlds of games through interactive origami inspired designs.

The project is designed for children and young adults. It challenges the typical handheld game controller interactions. Instead of monotonously pressing buttons and staring at screens of computers, Digifold introduces a new captivating gaming system where the player engages in traditional craft to play their favourite games. They fold their own origami figures from paper with preprinted electronics using conductive paint, which are then connected to games directly. The origami then becomes a controller in itself.

Digifold allows players to enjoy the gameplay but also improves children's craft skills, develops fine-motor skills, and supports mental concentration.

HOW TO USE THE BOOK

This book comes with a Bare Conductive Touch Board and a set of crocodile clips which you can use to connect your designs to computer games. Although the crocodile clips are included they could easily be replaced with any other conductive material such as foil, conductive paint or paper clips - whatever you have at hand!

Firstly, each origami section comes with its own design specific set of instructions, a link to the game and a QR code which you can scan to access a video tutorial showing in detail how to fold the designs.

Red dotted lines indicate valley folds and red solid lines - mountain folds.

Some patterns need to be removed from the book before folding. To do that, simply tear the page at the perforated line.

Then follow the video instructions to fold each controller. Patterns printed in black are the touch sensors which you will use to control the game. Connect the sensors to the touch board using the crocodile clips matching the numbers on the pattern and the connectors on the board, then connect the board to the game through Processing software.

Origami Crane

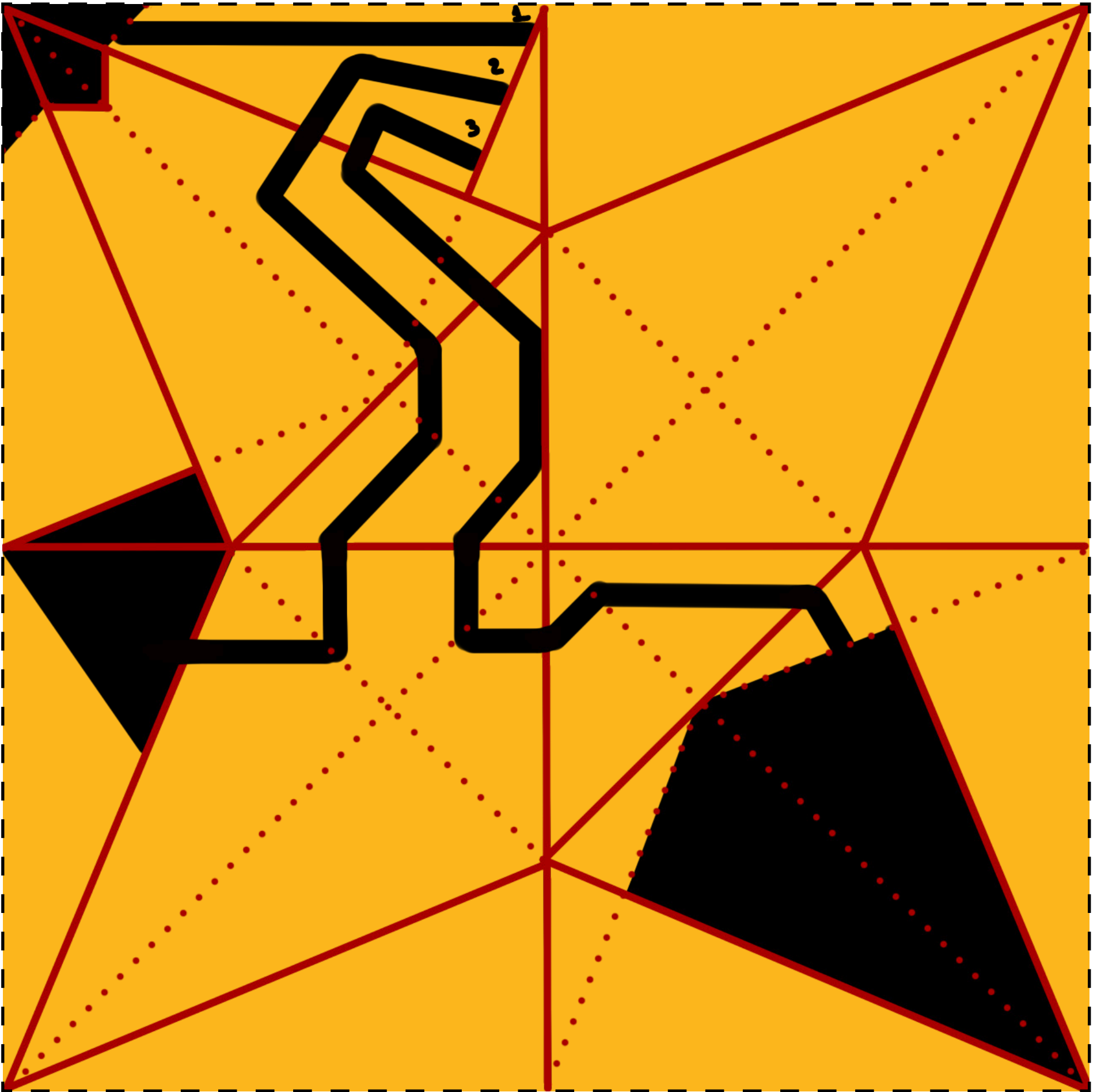
Flappy bird

Instructions

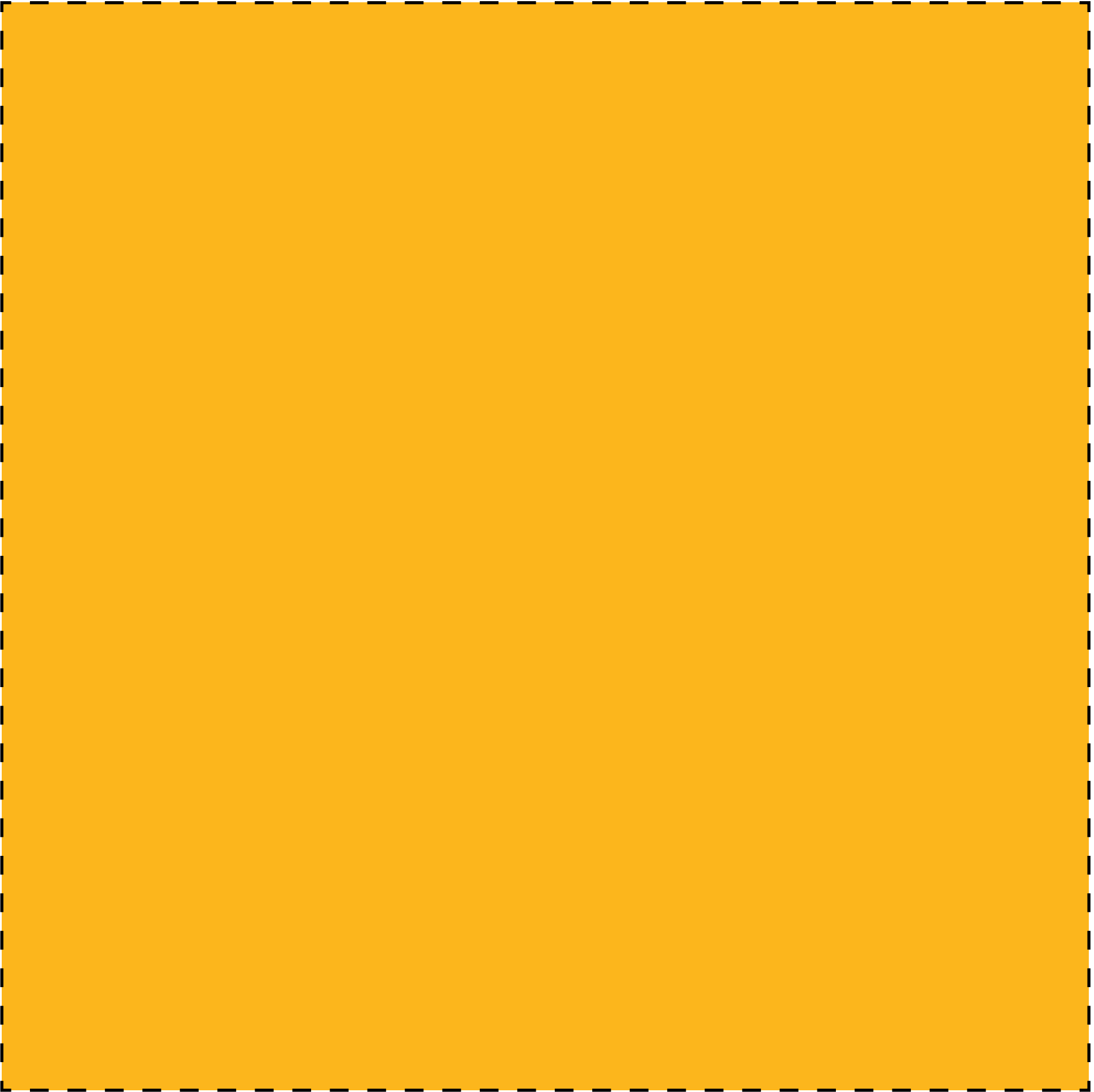
1. Firstly, remove the pattern from the book.
2. Using scissors cut out the origami paper following the dotted line.
3. Scan the QR code to access the video tutorial explaining the folding process. Red dotted lines are valley folds. Red solid lines are mountain folds. Black pattern - touch sensors printed with conductive ink.
4. After the crane is folded connect the sensors to the touch board using crocodile clips, making sure that the numbers on the paper match the numbers on the touch board connectors.
5. The head of the crane (sensor 1) - starts and pauses the game. The body (sensor 2) - activates the fall of the bird and tells the program that you're ready to play. By pulling the tail (sensor 3), the wings of the origami model start flapping and the bird flies up.

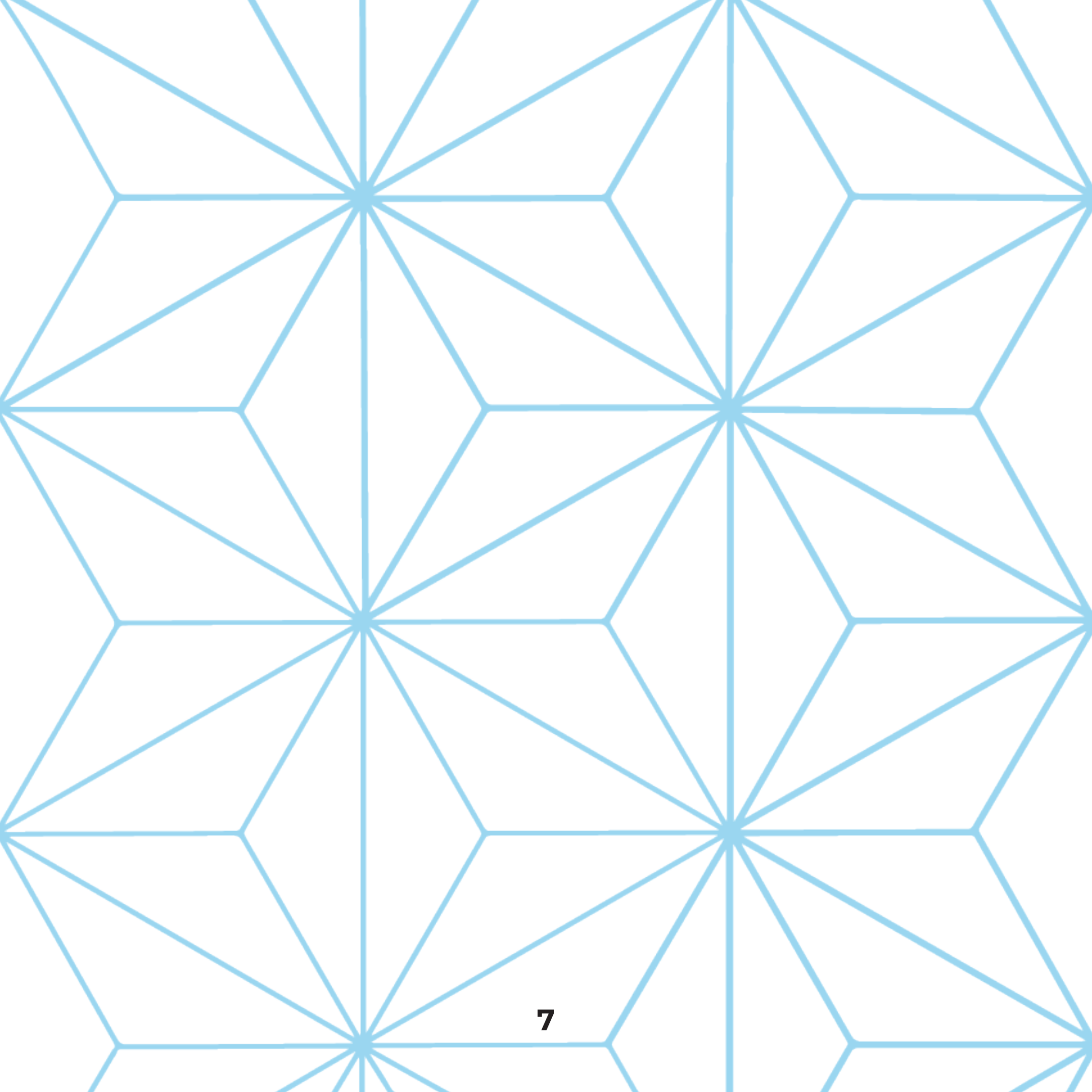
Get Flappy bird game at
www.digifoldgames.com/flappybird





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Tessellation 1

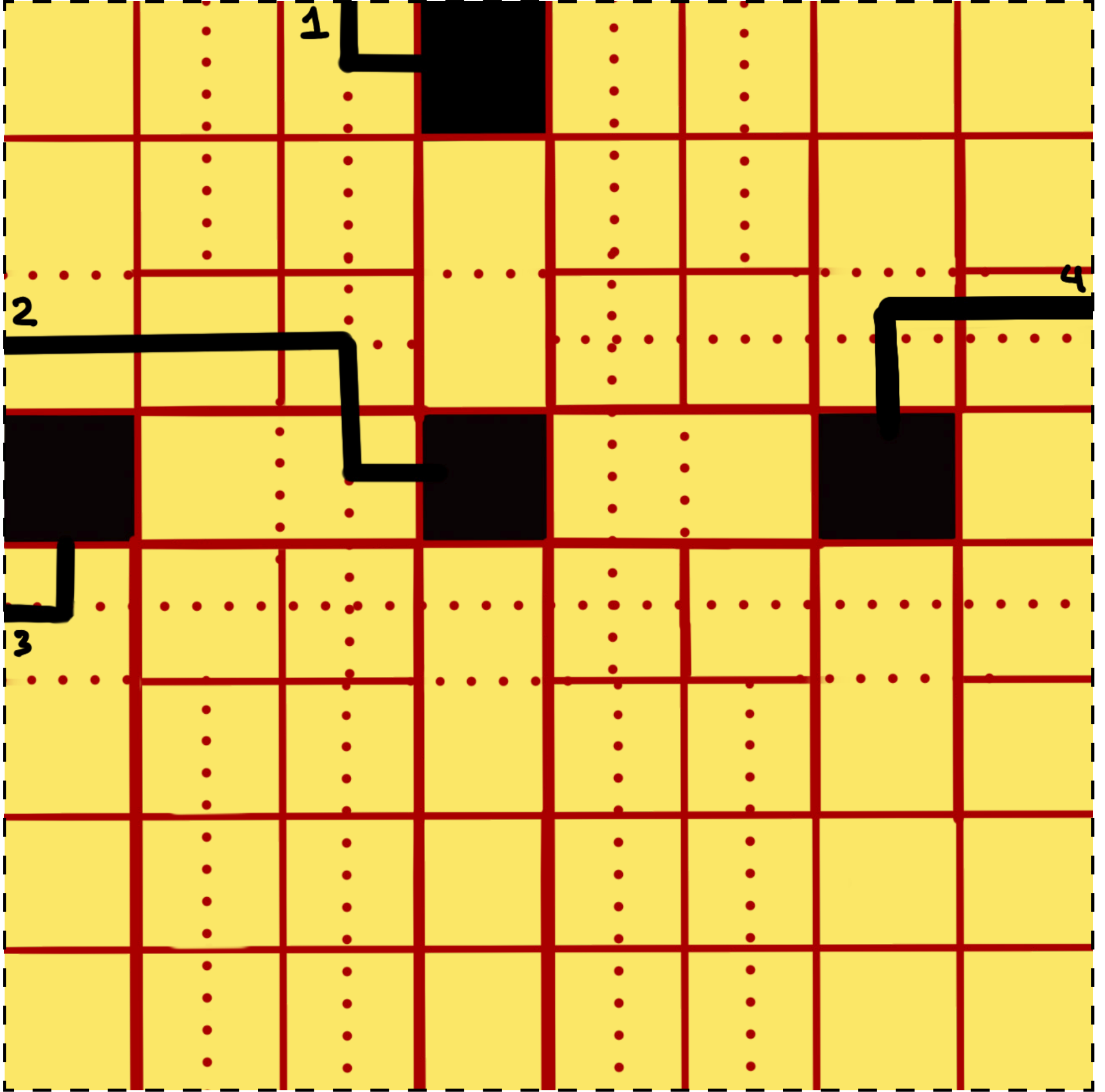
Platform Game

Instructions

1. Firstly, remove the pattern from the book.
2. Using scissors, cut out the origami paper following the dotted line.
3. Scan the QR code to access the video tutorial explaining the folding process. Red dotted lines are valley folds. Red Solid lines are mountain folds. Black pattern - touch sensors printed with conductive ink.
4. Attach the sensors to touch board using crocodile clips, making sure that the numbers on the paper match the numbers on the touch board connectors.
5. The created model was design to reseble four keyboard arrows, and they operate in the similar manner. You only need to touch the black sensors to make an action.
6. This model, unlike the origami crane is adaptable for various games, but for now, try playing the platform game linked below.



Get platform game at
www.digifoldgames.com/platform



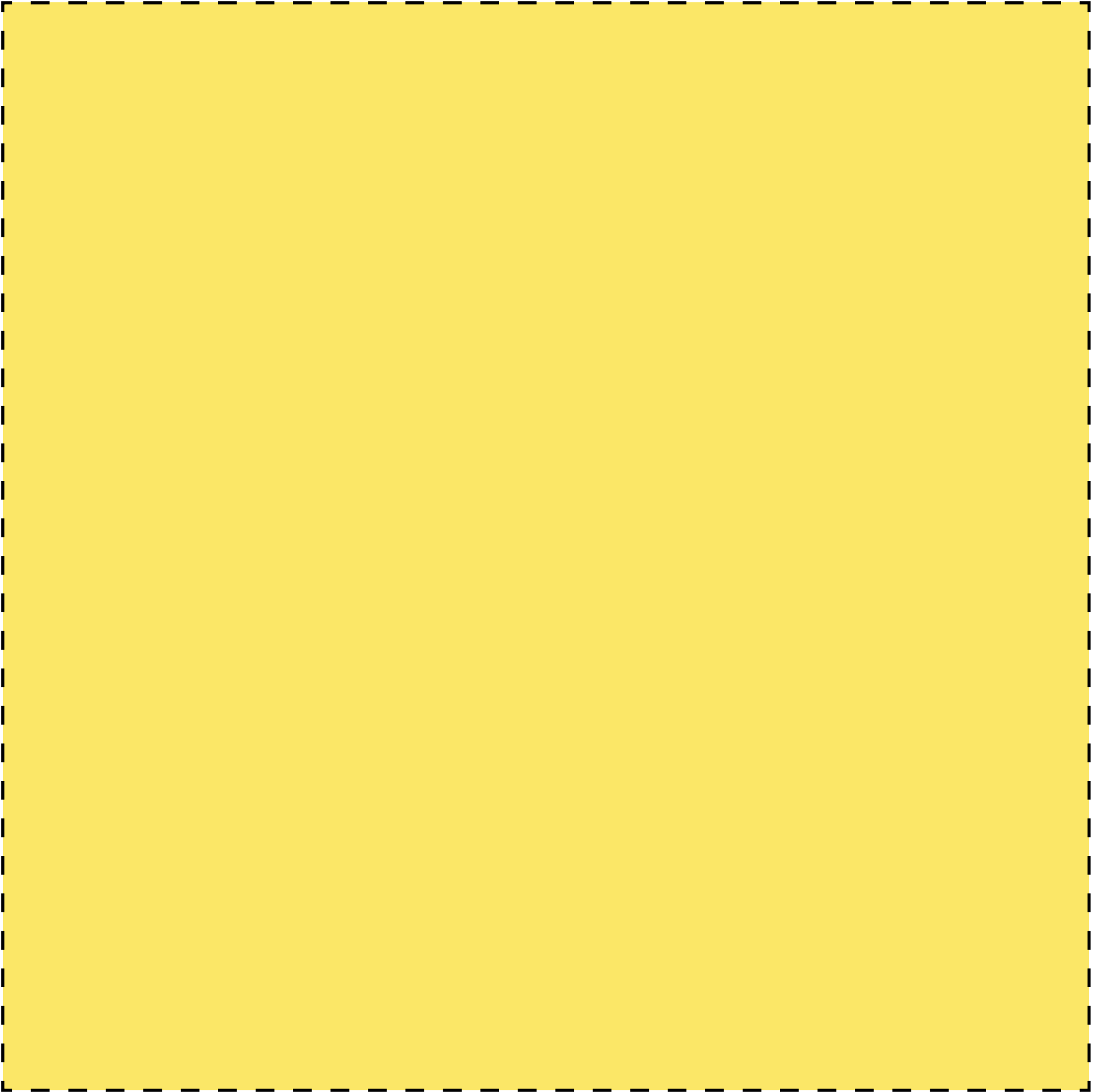
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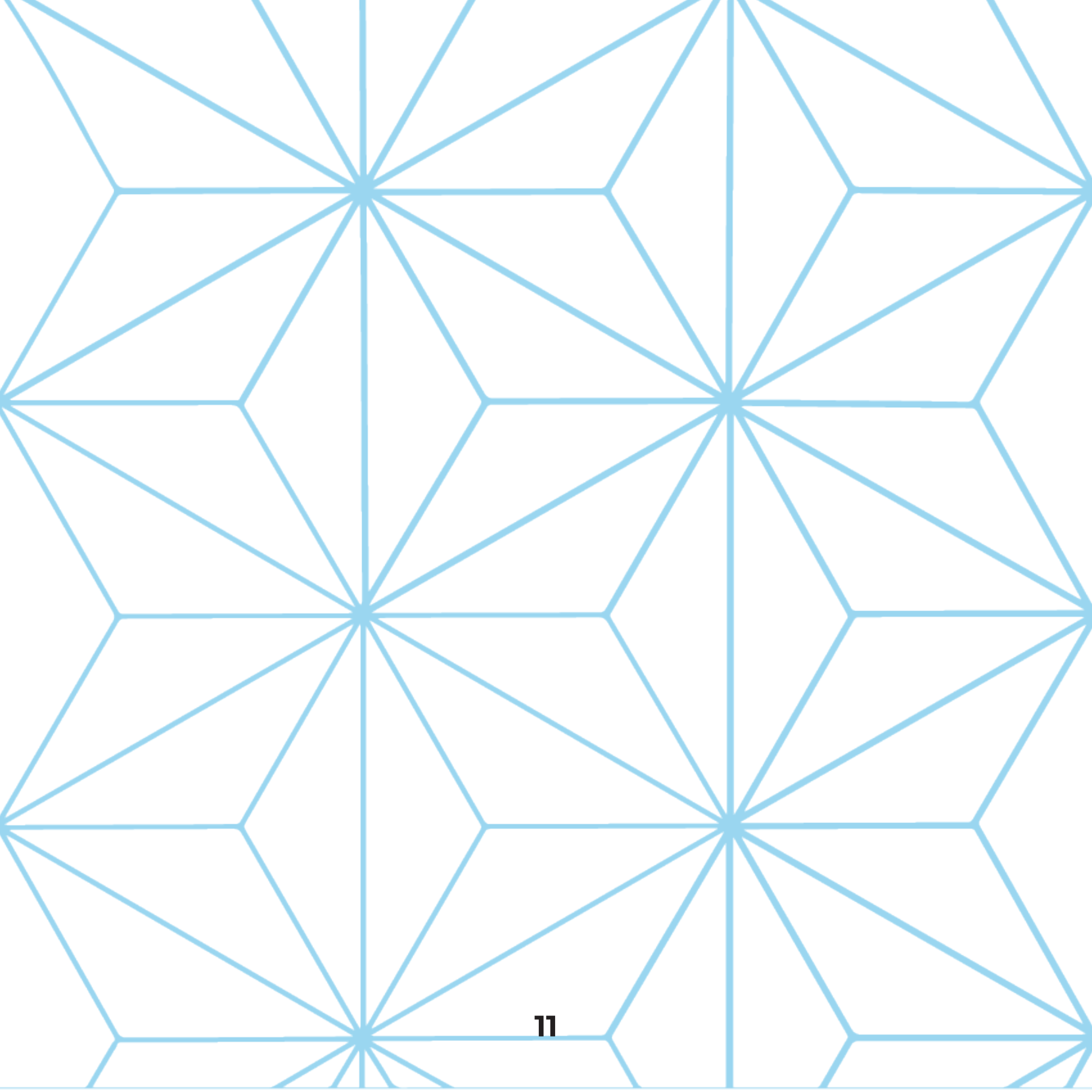
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Tessellation 2

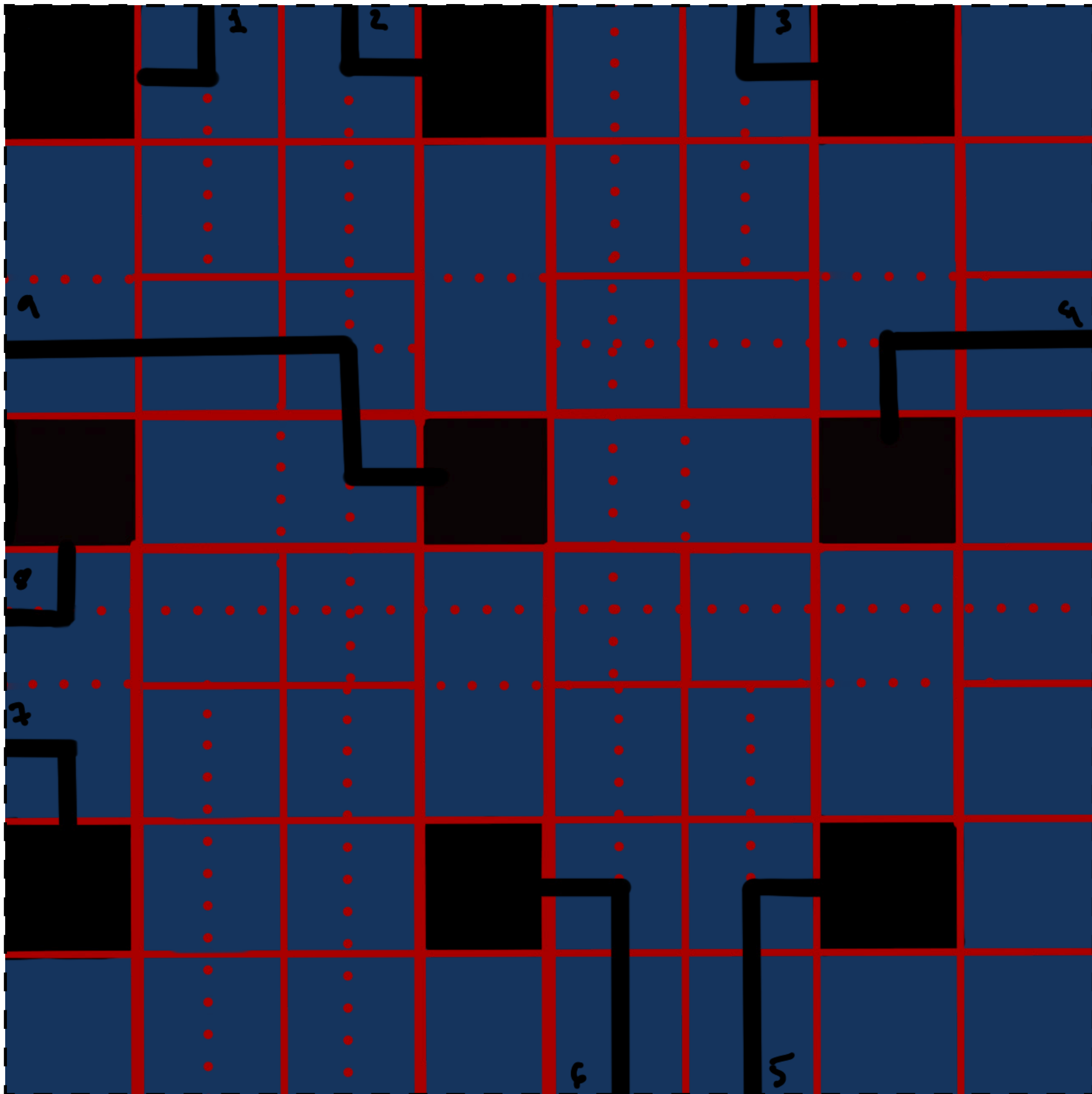
Feeding Fish

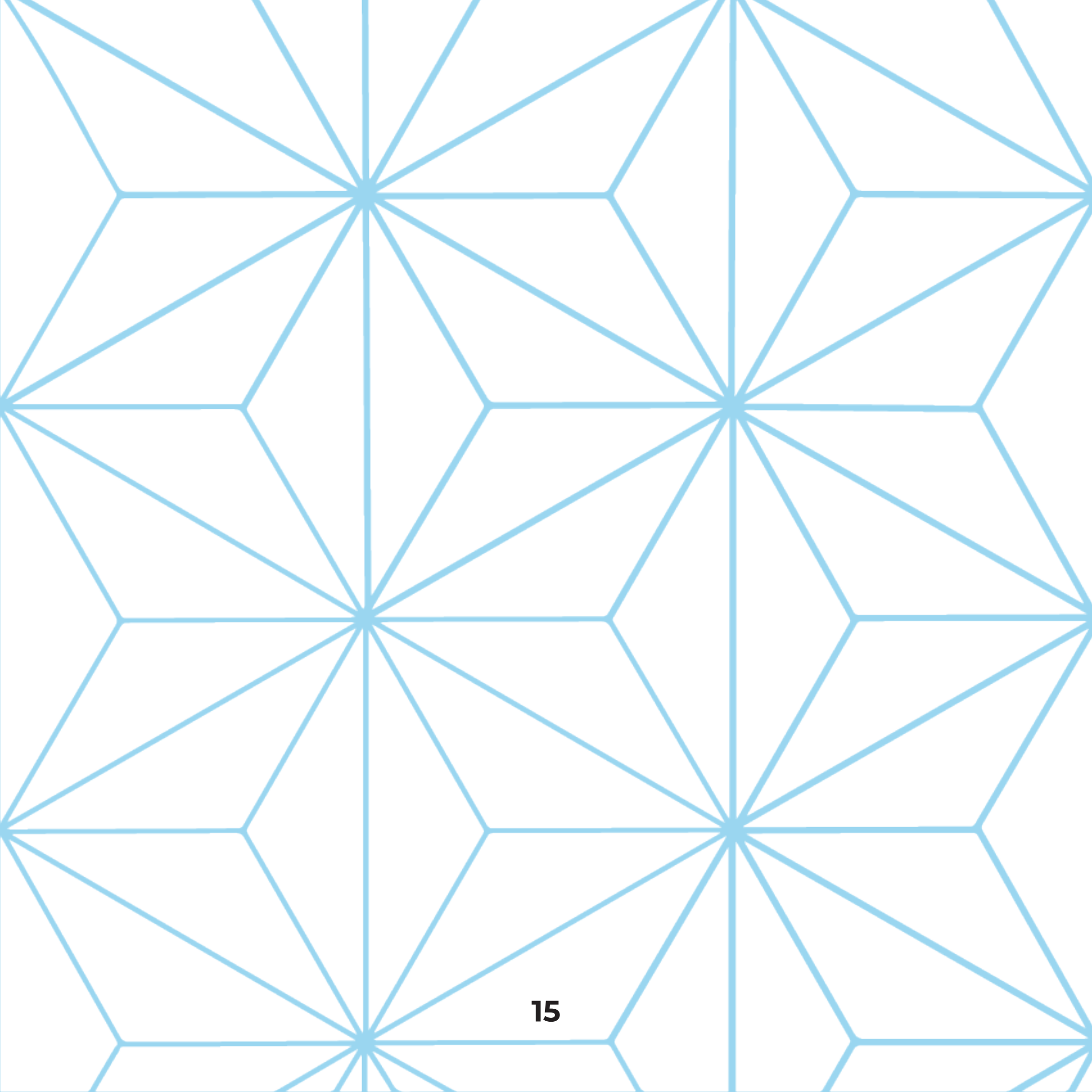
Instructions

1. Firstly, remove the pattern from the book.
2. Using scissors cut out the origami paper following the dotted line.
3. Scan the QR code to access the video tutorial explaining the folding process. Red dotted lines are valley folds. Red Solid lines are mountain folds. Black pattern - touch sensors printed with conductive ink.
4. Attach the sensors to the touch board using the crocodile clips, making sure that the numbers on the paper match the numbers on the touch board connectors.
5. This model has 9 touch sensors. Each square is assigned to a specific area on the screen so pressing the sensor imitates the pressing of the mouse button at that location on the screen.
6. This model is adaptable for various games, but for now, try playing the game linked below.



**Get feeding fish game at
www.digifoldgames.com/fishgame**





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Modular origami

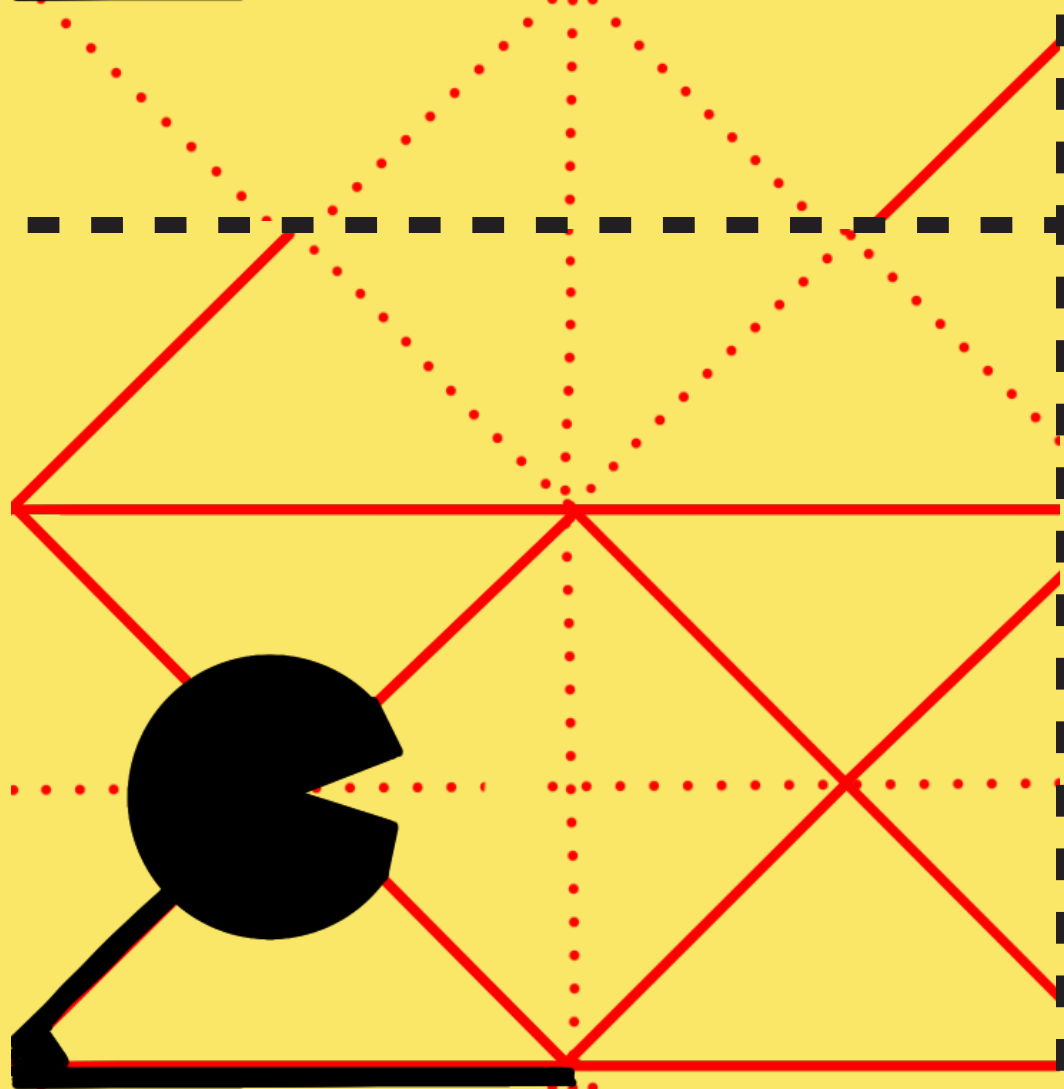
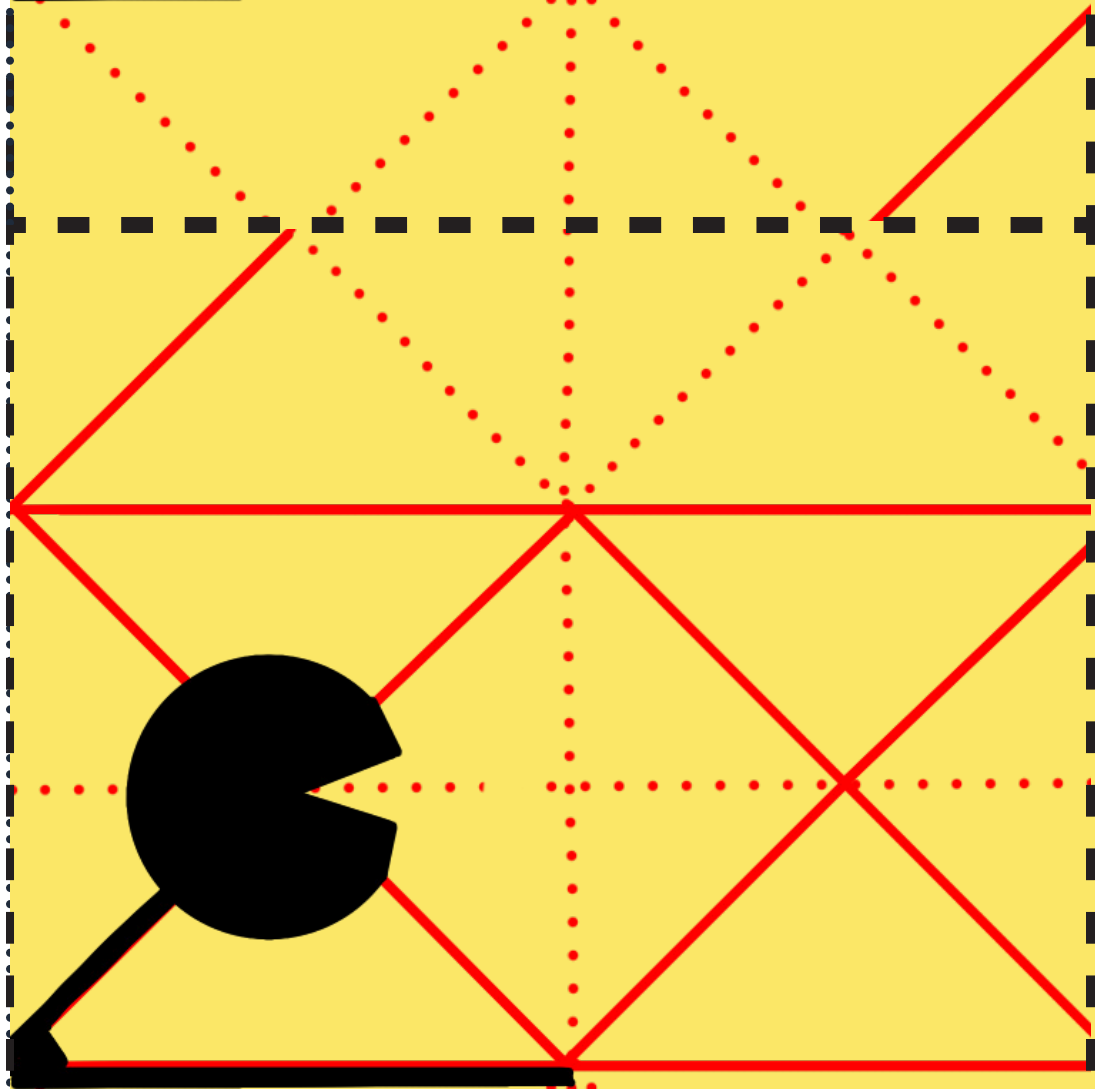
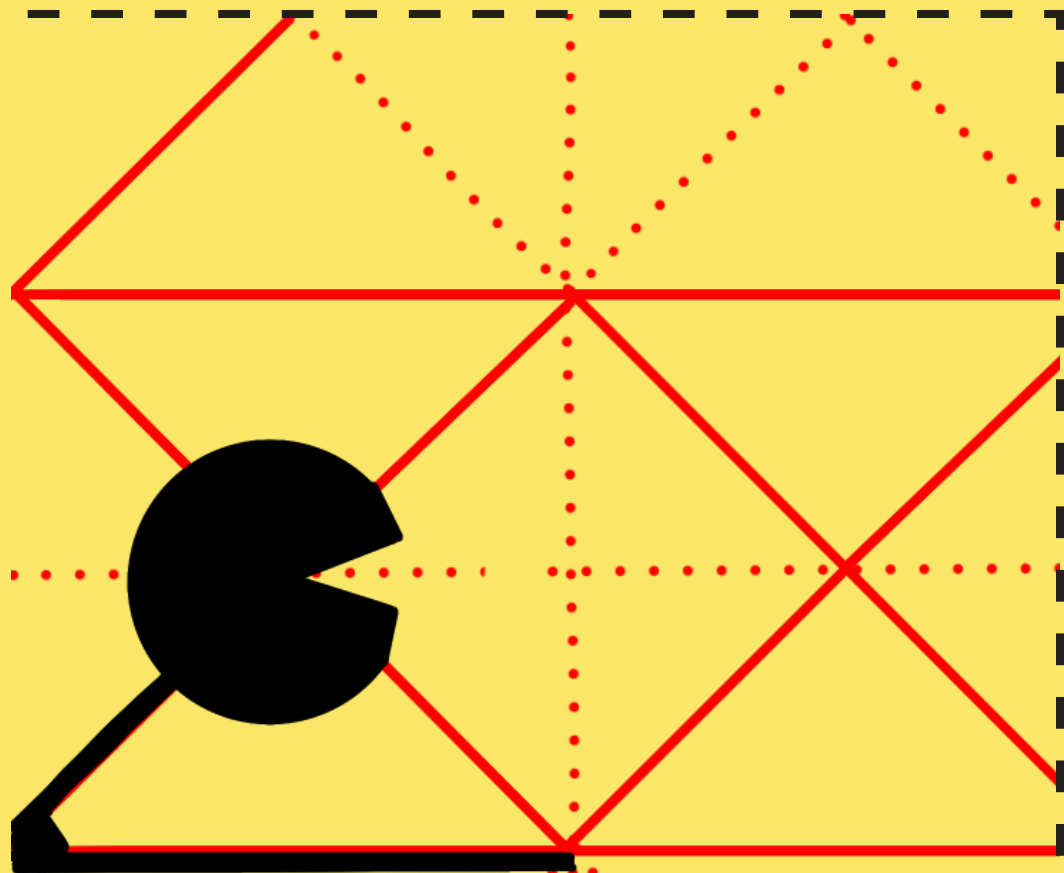
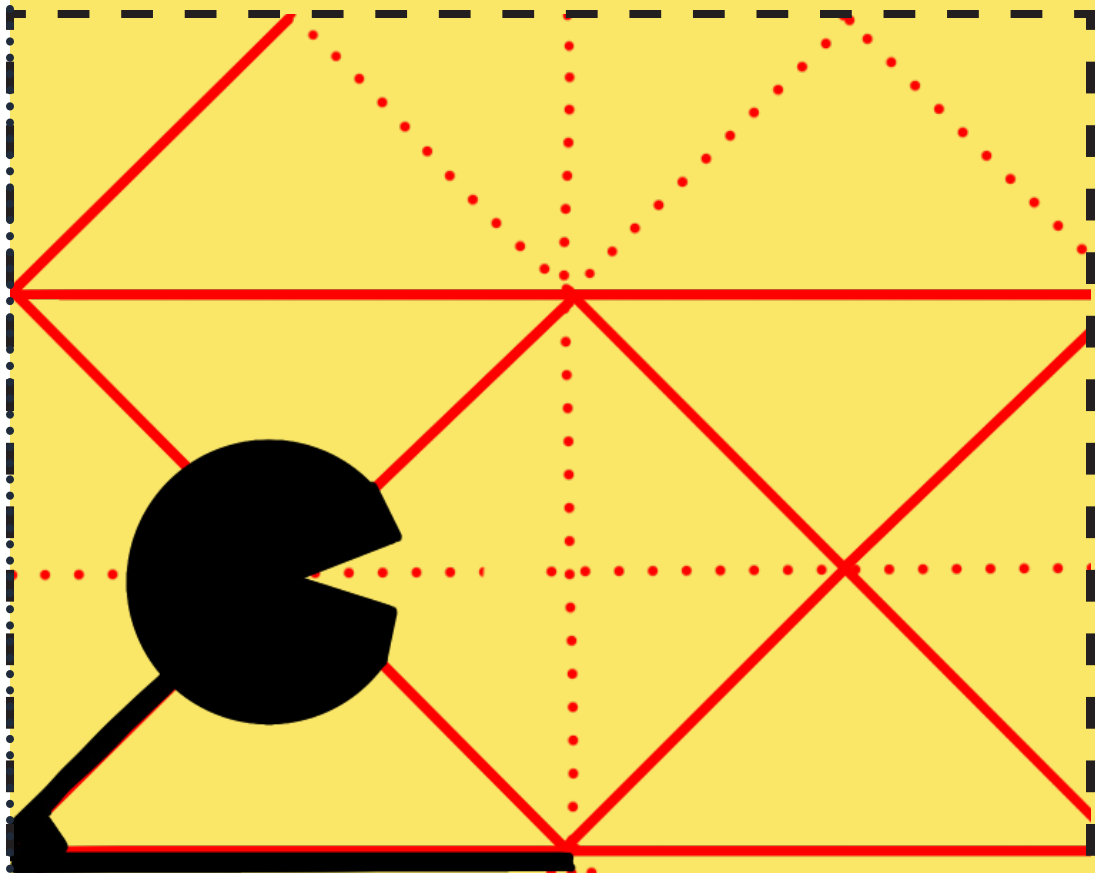
Pac-man

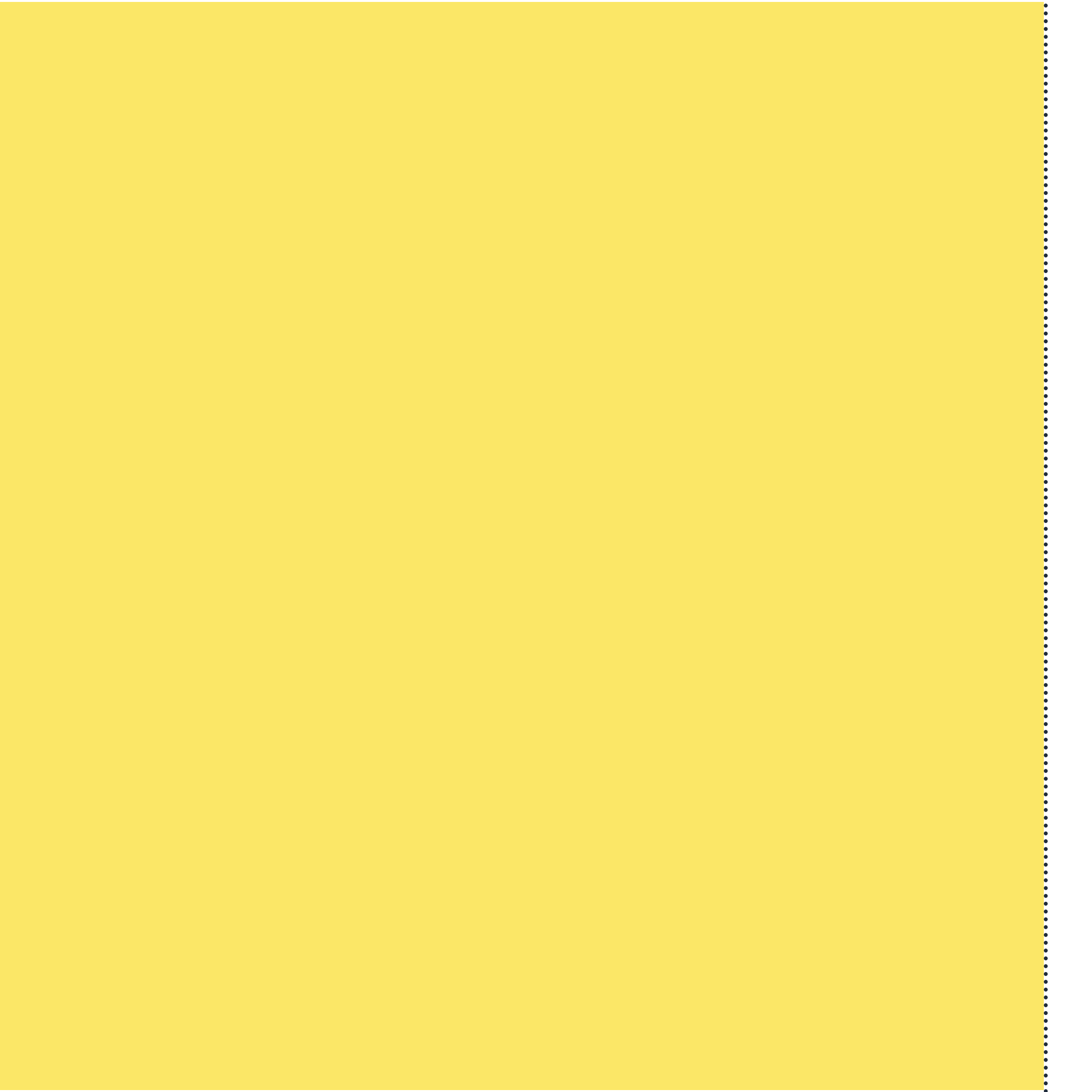
Instructions

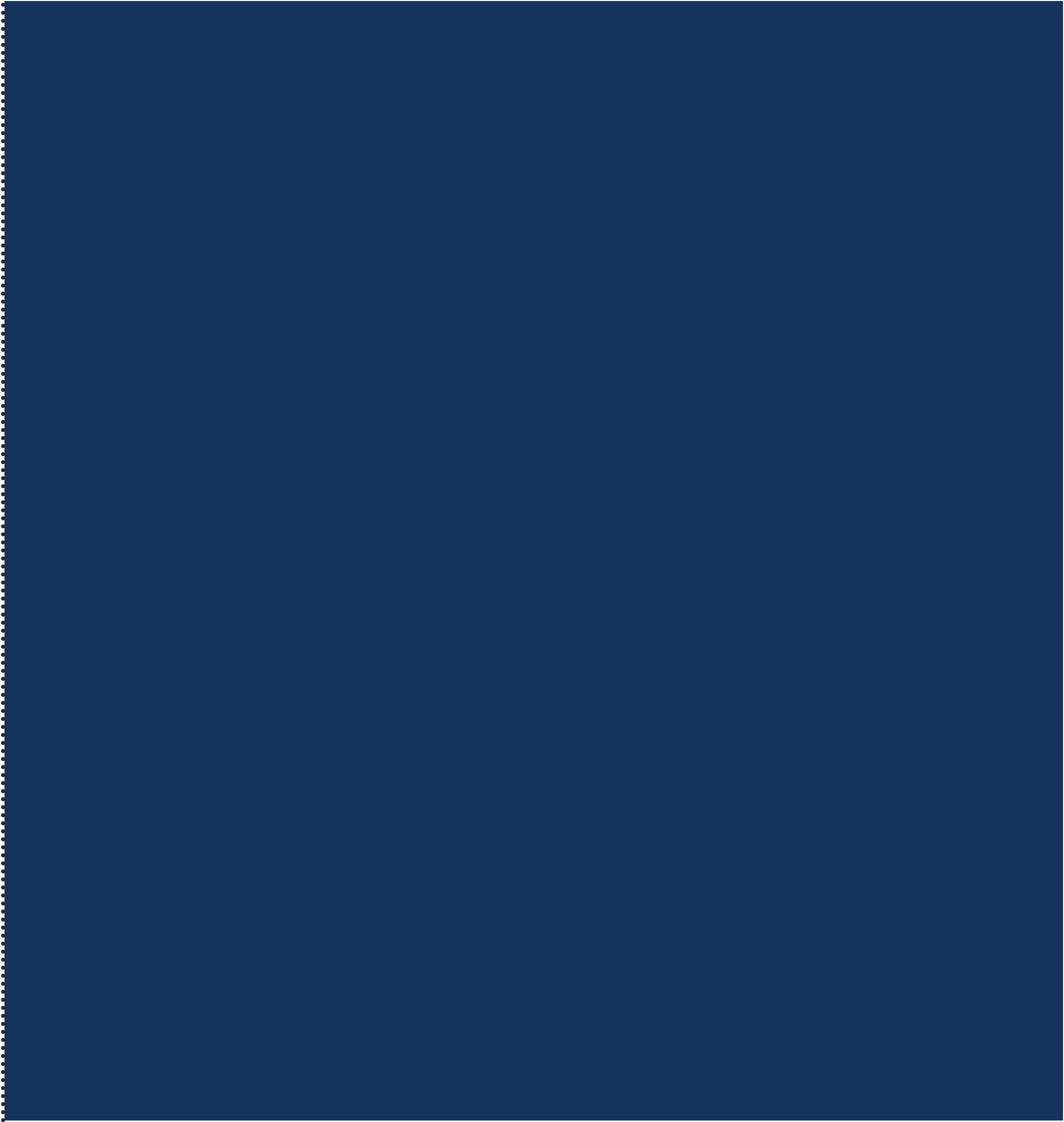
1. Firstly, remove the patterns and the base from the book.
2. Using scissors cut out the origami paper following the dotted line.
3. Scan the QR code to access the video tutorial explaining the folding process. Red dotted lines are valley folds. Red Solid lines are mountain folds. Black pattern - touch sensors printed with conductive ink.
4. After you finish folding the origami, put the modules together of the base. Feel free to experiment with arrangements. Attach the halves without the printed sensors to the base using double sided tape, allowing the triangle to fold while keeping the origami secure on the paper.
5. Attach the sensors to the touch board using the crocodile clips, making sure that the numbers on the paper match the numbers on the touch board connectors.
6. This controller has 4 modules with one sensor each
7. This model is adaptable for various games, but for now, try playing pac-man game linked below.



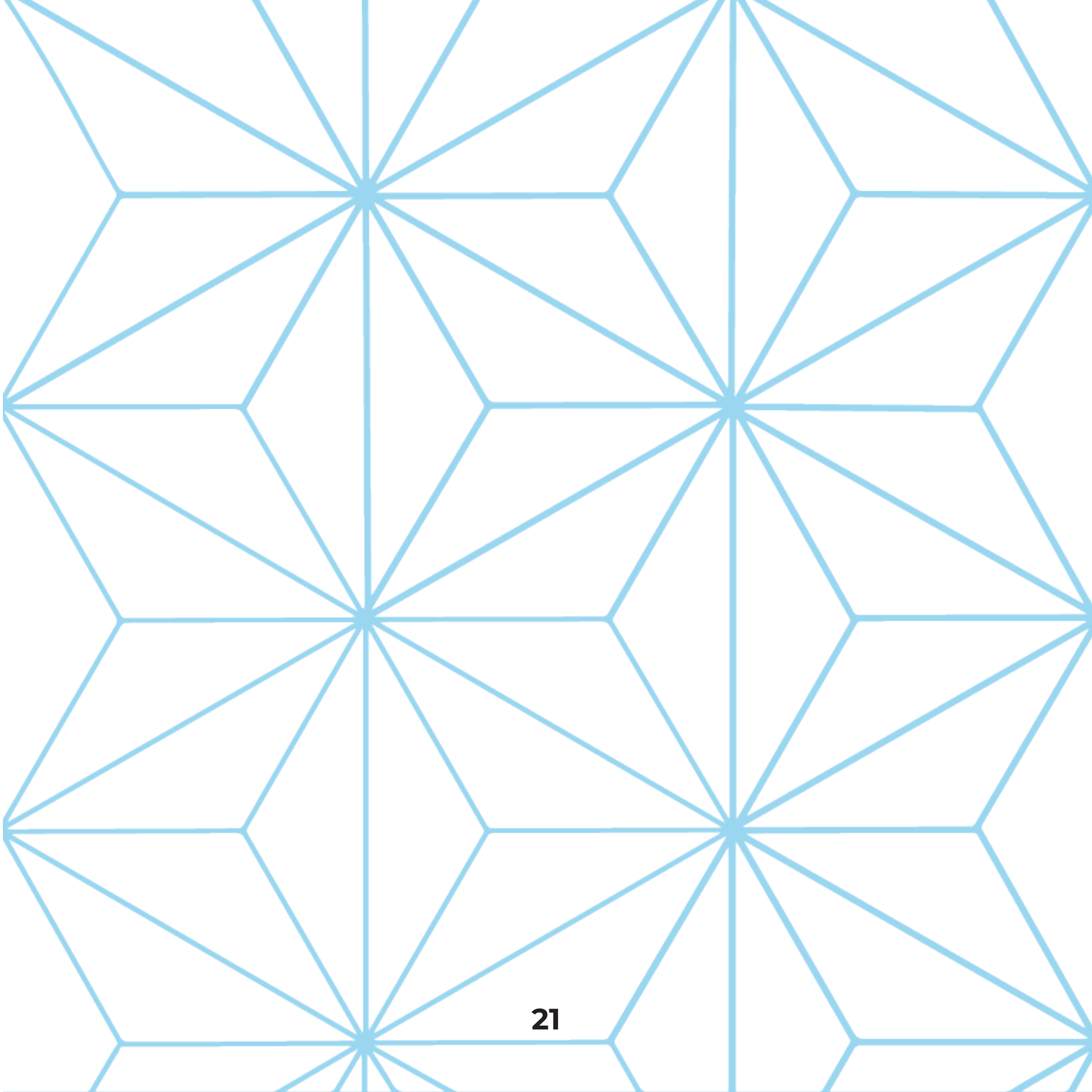
Get Pac-man game at
www.digifoldgames.com/pac-man











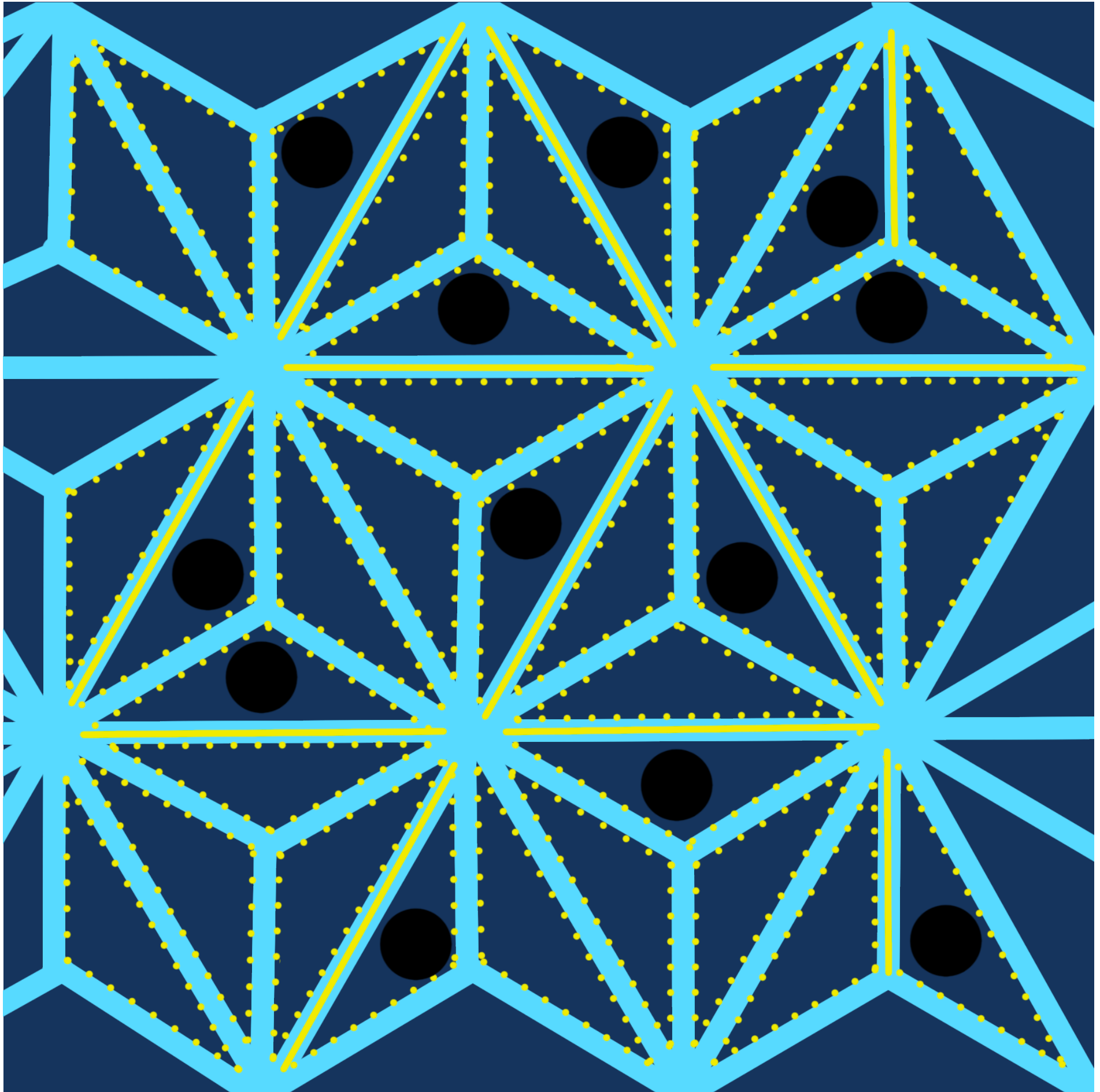
Paper cut outs

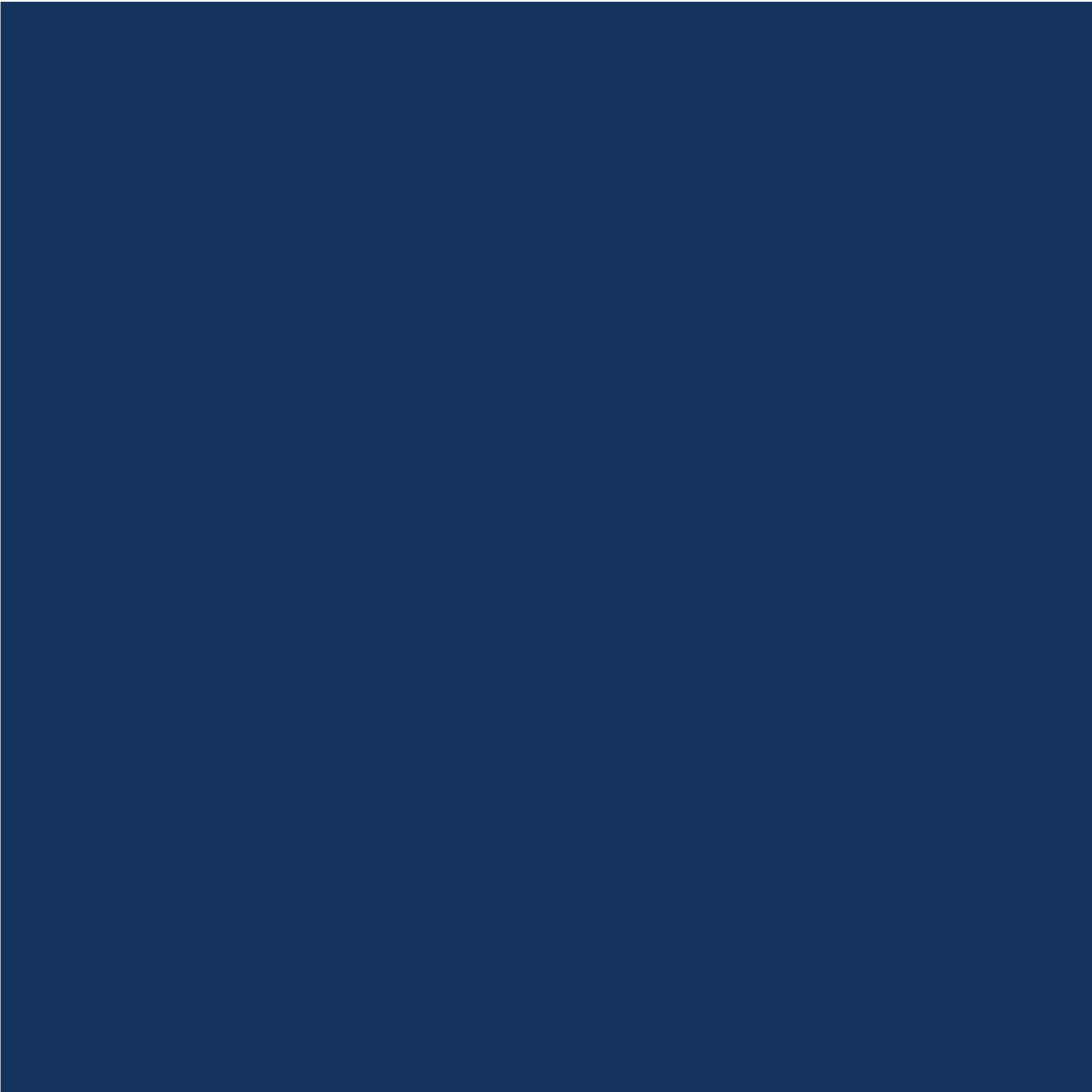
Midi Visualizer

Instructions

1. This design includes perforated triangular patterns. Tear through the paper to detach the triangles.
2. Fold the triangles following the yellow solid line.
3. Each of the folded triangles has a black circle printed with conductive ink. To interact with the games, simply press the folded triangles. That will reconnect each of the broken circuits (printed on page 25) and will activate the action.
4. On page 25 connect attach the sensors to the touch board using the crocodile clips, making sure that the numbers on the paper match the ones on the touch board connectors.
6. This controller has 12 sensors.
7. This model is adaptable for various applications, but for now, try creating music using midi tool linked below. You can also connect headphones or speakers to the touch board.

**Get midi visualizer at
www.digifoldgames.com/midi**







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