

Klein Quartic

1. Print the next four pages on card. For best results, use four different colors.
2. Copy the number onto each piece lightly in pencil.
3. Cut out the 24 pieces. Score and fold the lines.
4. Join the outer heptagons into pairs: 0D-8D, 1D-6D, 2D-7D, 18D-22D, 20D-21D, 19D-23D.
5. Join the inner heptagons into pairs: 11H-13H, 10H-12H, 9H-14H, 3H-15H, 5H-17H, 4H-16H.
6. Then join in the following sequence: 1C-13C, 13E-6E, 1G-11G, 11C-23C, 13G-23G, 19E-11E, 12B-13B, 23F-12F, 8E-12E, 8A-23A, 0A-1A, 3F-1F, 3E-0E, 8C-3C, 3B-11B, 8G-15G, 0C-12C, 10G-0G, 17B-11B, 3B-11B, 5B-10B, 5F-0F, 7A-19A, 7F-11F, 7G-17G, 7C-5C, 14B-13B, 14B-12B, 2E-5E, 2A-0A, 14C-2C, 2A-1A, 9G-2G, 7E-14E, 9B-15B, 9F-8F, 16B-5B, 16B-10B, 4B-15B, 4B-9B, 4F-2F, 4E-1E, 16E-23E, 16C-19C, 19G-4G, 19F-15F, 6C-4C, 6G-16G, 6F-10F, 22F-14F (suggestion: fold the tab over backwards and pinch), 22G-12G, 22A-7A, 22C-10C, 22A-19A, 18E-10E, 22E-15E, 18A-6A, 18C-15C, 18G-3G, 18F-17F, 20F-16F (suggestion: fold the tab over backwards and pinch), 20G-5G, 20A-23A, 17C-20C, 20A-8A, 20E-9E, 21E-17E, 21A-18A, 21C-9C, 21A-6A, 14G-21G & 13F-21F (suggestion: maybe just tuck these last two in, or use tape).

For reference, use the interactive software to explore the 3D shape:

<https://github.com/timhutton/klein-quartic>

A few screenshots are shown on page 6. Page 7 shows the same labelled 24 heptagons on the fundamental domain of the Klein Quartic on the $\{7,3\}$ tiling.