Benham Disk

The hand is quicker than the eye. Well, is it really? Is it magic, illusion or trickery?

**What to do:** Cut a circle 4 inches (10 cm) in diameter out of white paper. Color one half black. Divide the white half into four equal parts. In each segment draw three black arcs about 3/4 inch thick, as in the illustration.

Cut a circle 4 inches (10 cm) in diameter out of the cardboard. Place the paper circle on the cardboard circle. Mount them together on a pin attached to a pencil eraser. Spin the disk at various speeds, clockwise and counterclockwise.

**What happens:**
The arcs seem to close up to form six rings. At a slow speed, spinning clockwise, the outer rings look blue and the inner rings look red. When you spin them counter clockwise, the colors reverse.

**Why:** The arcs seem to close to form rings, because the eye continues to see each arc for a short time after it has disappeared.

Why do we see red and blue when the only colors on the disk are black and white? The entire color spectrum is present in white light, but our eyes register the different colors at different lengths of time.

When we spin the disk, light from the colors that make up white reach the eye, but are visible for only an instant before being followed by the black portions of the disk. Our eye is only able to register a part of that color spectrum—the blue, which has the shortest rays, and the red, which has the longest.

Try varying the patterns on the white half of your Benham Disk and see the results.

**YOU NEED**

- White paper
- scissors
- Black ink marker
- cardboard
- straight pin
- pencil with an eraser