

Bullseye Polaris

The annual high school photo contest run by the American Association of Physics Teachers drew 780 submissions this year from students around the world. This entry, by Kenyon William Kay, a student in Steven Bailey's science class at The Gunnery school in Washington, Connecticut, won second place in the "natural" category; his caption (edited for space) is below. For other winners, visit www.aapt.org/Programs/contests/photocontest.cfm.

Imagine Earth had a line cutting through it, extending through the Northern Hemisphere. Now, following that same imaginary line, it eventually points towards Polaris, commonly known as the North Star. It has been a beacon for centuries, used as a celestial guide in determining the direction of North. Interestingly, in the Southern Hemisphere there is no similar guiding star; however, a triangulation between the Southern Cross constellation along with two pointer stars can be used to determine South. My composite image consists of 94 long exposures layered over one another. This leaves us with an exaggeration of the paths the stars take. A common misconception is that the stars are spinning through space, revolving around Earth. However, the reality is that Earth's rotation about its axis causes the star trails. This photo was taken over two hours and therefore shows us only one-twelfth of the actual Earth rotation. One interesting note about this photograph is that the stars on the outside of the image have relatively longer streaks compared to the stars near the center. However, these streaks are directly proportional. I made the decision to use a wider lens for this image, to show the exaggerated effect and paths of the stars as we spin around. My image illustrates a grand illusion and I have titled it *Bullseye Polaris* mainly because it portrays the effects of our Earth spinning and the illusion of stars revolving around Polaris.

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