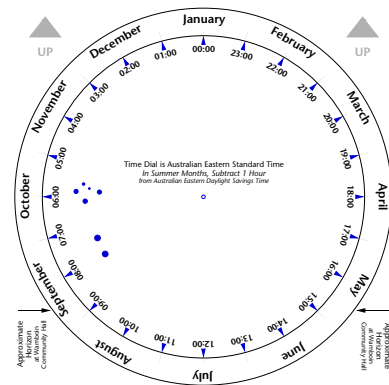


CUB SCOUT SPACE ACHIEVEMENT BADGE – THE STARS FINDING SOUTH USING THE SOUTHERN CROSS

Make a simple Star Wheel to help locate the Southern Cross in the night sky, and to learn how to find South using the Southern Cross.

Resources

- Star Wheel Templates
- Light Weight Paper Card
- Overhead Transparency Film
- 3mm Hole Punch
- Paper Fastener



Instructions

1. Each Cub should receive a paper fastener and copies of the three templates—Wheel Base, the Star Wheel, and the Finding South instructions wheel—printed on appropriate material. I printed the Wheel Base and Star Wheel on stiff craft card, and the Finding South instructions on transparent film so that it could be placed over the top of the Star Wheel without obscuring the location of the Southern Cross and Pointers;
2. Cut out the Star Wheel and the Finding South instruction wheel;
3. Place the Star Wheel on top of the Wheel Base, lining up the centre holes. The Finding South instruction wheel can be placed in front of the Star Wheel (convenient to begin with, but more difficult to read), or simply on the back of the Wheel Base for reference. Fasten the three pieces together using the paper fastener;
4. To use the Star Wheel to locate the Southern Cross, match up the current time and date, the time around the outside of the Star Wheel and the (approximate) date on the Wheel Base respectively. Note that when Daylight Savings Time is in effect, the time used on the Star Wheel should be one hour less than the 'clock time' at the time of observation;
5. The Southern Cross, and the two Pointers, should (weather permitting) appear in the southern sky as indicated on the Star Wheel. The stars in the southern sky, including the Southern Cross, will appear to rotate (albeit very slowly) around a point above the South Pole throughout the evening, although of course, it is the Earth that is actually rotating;
6. As illustrated on the Finding South wheel, we can find south in one of two ways. We can locate the Southern Cross (the constellation "Crux") and extend an imaginary line running through its main axis, by approximately four and a half times the length of the Southern Cross, dropping down from this point to the horizon, that point on the horizon then being South.

Alternatively, we locate the Southern Cross and the two Pointers, the two brightest stars in the constellation "Centaurus", one of which, Alpha Centauri, is the nearest

star to the Earth (after our own Sun). To find south, we first run an imaginary line between the two Pointers. We then run another imaginary line which bisects this line (cuts it in half) at an angle of 90° (the Perpendicular Bisector) towards the imaginary line running through the main axis of the Southern Cross (see previous paragraph). The point on the horizon directly under the point of intersection of these two lines is South.

7. If you wish, you can add other southern sky constellations to the Star Wheel and note where and when they appear in the night sky.

Resource Preparation

(Coloured) Card
 250 gsm 84 x 60 cm \$3.95 The Art Store

Cut card into ~20 cm squares. I used blue card, a pale blue for the 'Start Wheel' and a darker (but not too dark for the print to show up clearly in low light blue for the 'Base'. Print the templates WheelBase.pdf and StarWheel.pdf onto these cards. Punch a 3 mm hole in the middle of the circle on each card.

Overhead Transparency Film
 3M PP2500 100 sheets \$? WC Penfold

Print the template FindingSouth.pdf onto Overhead Transparency Film. The use of OHT film is not essential. Plain paper can be used, although it is then not possible to overlay this sheet on the Star Chart itself. Punch a 3mm hole in the middle of the circle.

Paper Fasteners
 Brand/Part Number Pkt of 100 \$? Big W / Coles

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