

HAWC Significance Maps Race

Each team will need a computer logged into the HAWC Significan Maps Page.

Go to the HAWC Home Page at <https://www.hawc-observatory.org/> on this page under the category of Public Datasets. Along the first bullet point beginning with “2HWC...” there is a hyperlink to the interactive [tool for significance map and fluxes](https://data.hawc-observatory.org/datasets/2hwc-survey/coordinate.php). Click on it. It will bring you to the HAWC Significance Maps Page at <https://data.hawc-observatory.org/datasets/2hwc-survey/coordinate.php>

Once all of the teams are logged into the correct website and have a Race Tracker and calculator the teacher will remind the class of the rules and start the clock.

Game Rules:

- (1) If you pick it up you must solve it! Teams are **not** allowed to put a card back if they don't like the coordinates on the card. Record the Card Number on the Race Tracker.
- (2) Only one card at a time! Teams must finish a card and get the answer approved by the teacher before getting another card.
- (3) Teams must stay together and solve the problem together! All team members must be together when checking answers.
- (4) The Team with the most correct answers at the end of the time WINS!

Background Information:

Right Ascension (RA) is a measurement of degrees or hours counterclockwise in the Northern Hemisphere from the meridian line. The Meridian line is designated as the line on the celestial sphere when the earth's meridian will be lined up on January 1st, 2000 at 12:00 Terrestrial Time (TT).

RA can be written as Hours (HRS), minutes (min) and seconds (s) but can also be written as a J2000-Decimal. To convert from HRS, min, s to a Decimal use the following equation:

$$(HRS + (min/60) + (s/3600)) \times 15$$

For example the Crab Nebula has a RA of 5 HRS 34 min 32 s

The conversion looks like:

$$(5+(34/60)+(32/3600)) \times 15 = 83.63$$

Declination (Dec) is the degree along the celestial sphere where the celestial equator is zero and the celestial pole is 90 degrees in the Northern Hemisphere. In the Southern Hemisphere the degrees go from zero to -90 degrees.

Dec can be written as degrees (°) minutes (') and seconds (") or as a J2000-Decimal. To convert from Degrees, minutes, seconds to J2000-Decimal use the following equation:

$$(\text{Degree} + (\text{minute}/60) + (\text{seconds}/3600))$$

For example, the Crab Nebula has a Dec of 22° 0' 52"

The conversion looks like:

$$(22+(0/60)+(52/3600))= 22.01$$

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