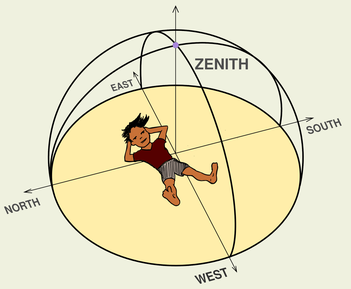
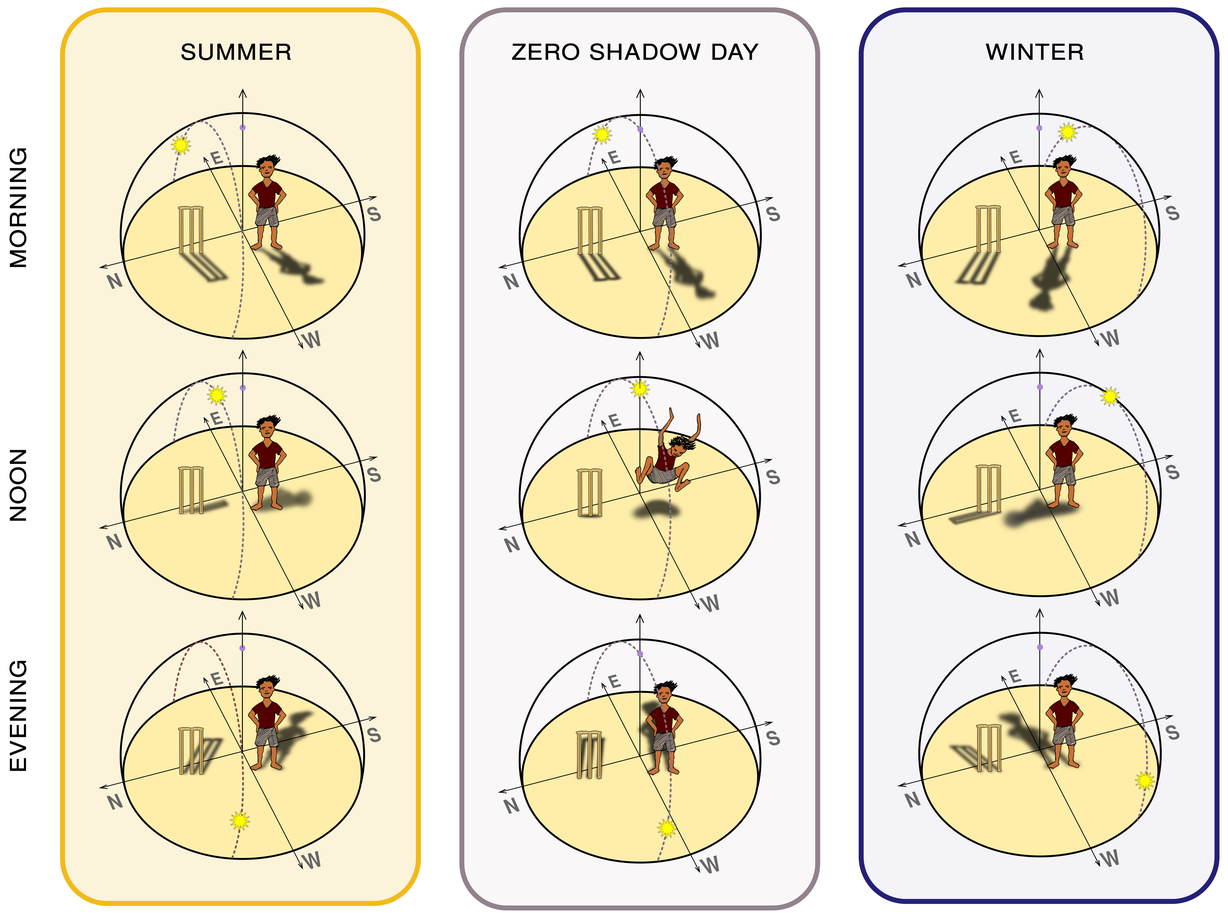
ZERO SHADOW DAY

Lie down on your back and imagine the sky is a giant dome. The highest point of this sky dome is called the **ZENITH**.

When the sun reaches the zenith, your shadow will be exactly under you! This happens only twice a year, on **ZERO SHADOW DAYS**.



The arc the sun makes in the sky changes over a year:



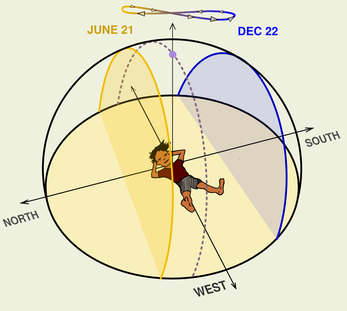
How do the directions and lengths of the shadows change throughout the day?

When the sun reaches the zenith, you won't be able to see your shadow – unless you jump!

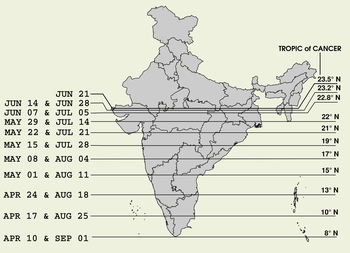
This is the arc of the sun on the winter solstice (December 22). How do the shadows differ in winter?

Dakshinayan
JUNE 21 – DEC 22
arc moves southward

Uttarayan
DEC 22 – JUNE 21
arc moves northward



ZSD dates across India



- So the sun doesn't *always* rise *exactly* in the east, and set *exactly* in the west? Does it ever do so? How many times a year?
- If you live on the Tropic of Cancer, then your ZSD will coincide with the summer solstice. If you live on the equator, then your ZSDs will coincide with the equinox days. Can you explain these facts?

Download the Zero Shadow Day app for information on ZSD dates in different parts of the country from the Astronomical Society of India:
http://astron-soc.in/outreach/activities/zero-shadow-day/

You can explore more day arcs from around the world on Sun Path 3D:
http://andrewmarsh.com/apps/staging/sunpath3d.html

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