**NAME:**

ANSWER KEY

Draw (in plan view) the earth’s position in relation to the sun during the following four times of the year. Indicate the appropriate direction of axial tilt and label with the correct Julian Day:

173

* June 22 (Summer Solstice) Julian Day: \_\_\_\_\_\_\_\_\_\_

266

* September 23 (Autumnal Equinox) Julian Day: \_\_\_\_\_\_\_\_\_\_

356

* December 22 (Winter Solstice) Julian Day: \_\_\_\_\_\_\_\_\_\_

80

* March 21 (Vernal Equinox) Julian Day: \_\_\_\_\_\_\_\_\_\_

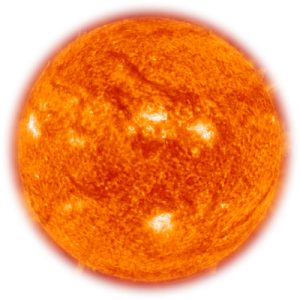
Additionally, indicate the Earths position **on your birthday** and calculate the **Julian Day**!

**Earth’s Orbit**

**Example Birthday:**

**Date:** May 15

**Julian Day:** 135



**Date:** March 21

**Season**: Spring (Vernal Equinox)

**Julian Day:** 80

**Axial Tilt:** Tangent to Earth’s orbit

**Axial Tilt**

**The Sun**

**Date:** December 21

**Season**: Winter (Winter Solstice)

**Julian Day:** 356

**Axial Tilt:** Away from the sun

**Date:** June 22

**Season**: Summer (Summer Solstice)

**Julian Day:** 173

**Axial Tilt:** Away towards the sun

**Date:** September 23

**Season**: Spring (Autumnal Equinox)

**Julian Day:** 266

**Axial Tilt:** Tangent to Earth’s orbit

Example: May 15

What is the date of your birthday? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

135

What is the Julian Day (of your Birthday)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example of possible solutions provided at the following link:

**http://www.moonstick.com/motions.htm**

This is an example from the website above. This is an advanced version showing the time of the day. Encourage the students to think about time.

