

# ASTRONOMY 101:

## A Mini-Lecture & Student Reaction



**Teacher:** Sirius, the brightest “star” when seen from Earth, is actually two binary stars. The distance between Sirius A and B is roughly the same as the distance between Sol and Uranus. . . .

**Melissa:** *(yawning)* So what?

**Teacher:** Proxima Centauri, the nearest star to our sun, is too dim to be seen by the naked eye. However, this red dwarf is merely 4.22 light years away. Can you imagine a star only 0.0056% as bright as our Sun?

**Melissa:** *(shaking her head, then yawning)* Big deal!

**Teacher:** There are ten known stars within ten light years of our sun. Within a hundred light years, more than 500 type-G stars have been discovered.

**Melissa:** *Yeah, yeah, yeah . . . I'm bored factoids like this.*

**Teacher:** Our galaxy, 100,000 light years across and a thousand light years wide, has about 200-400 billion stars as well as a black hole devouring some objects near its center.

**Melissa:** *I knew that, but right now there's a black hole in my stomach. What's for lunch?*

**Teacher:** Only half-a-billionth of the energy released by the sun ever reaches the Earth.

**Satoru:** *(grumbling)* I think only a billionth of this lecture is reaching my brain.

**Teacher:** A billion years ago, one day on Earth lasted about 18 hours and one lunar orbit was merely 20 days. As a consequence of friction and gravitational pull, our planet's rotation is gradually slowing at the rate of 2.2 seconds per 100,000 years. The moon is also moving away from the Earth about 3 cm per year.

**Liao:** *Gosh! I hope I can move away from this lecture room faster than that!*

**Teacher:** Some 19,000 meteorites (weighing 6 tons in total) hit the Earth each day. Most of them burn up in the atmosphere. Once every thousand years or so a meteorite large enough to destroy a city impacts Earth. Once ever 250,000 years or so one large enough to impact the global climate hits us.

**Melissa:** *Couldn't one of them drop on this classroom? That's one way to end this tedious lecture!*

- T Newfields

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