

竜ヶ崎第一高等学校 白幡探究Ⅰ 数学領域

茨城県立竜ヶ崎第一高等学校

月食～太陽と月と地球の関係性～

Ryuugasaki 1st high school

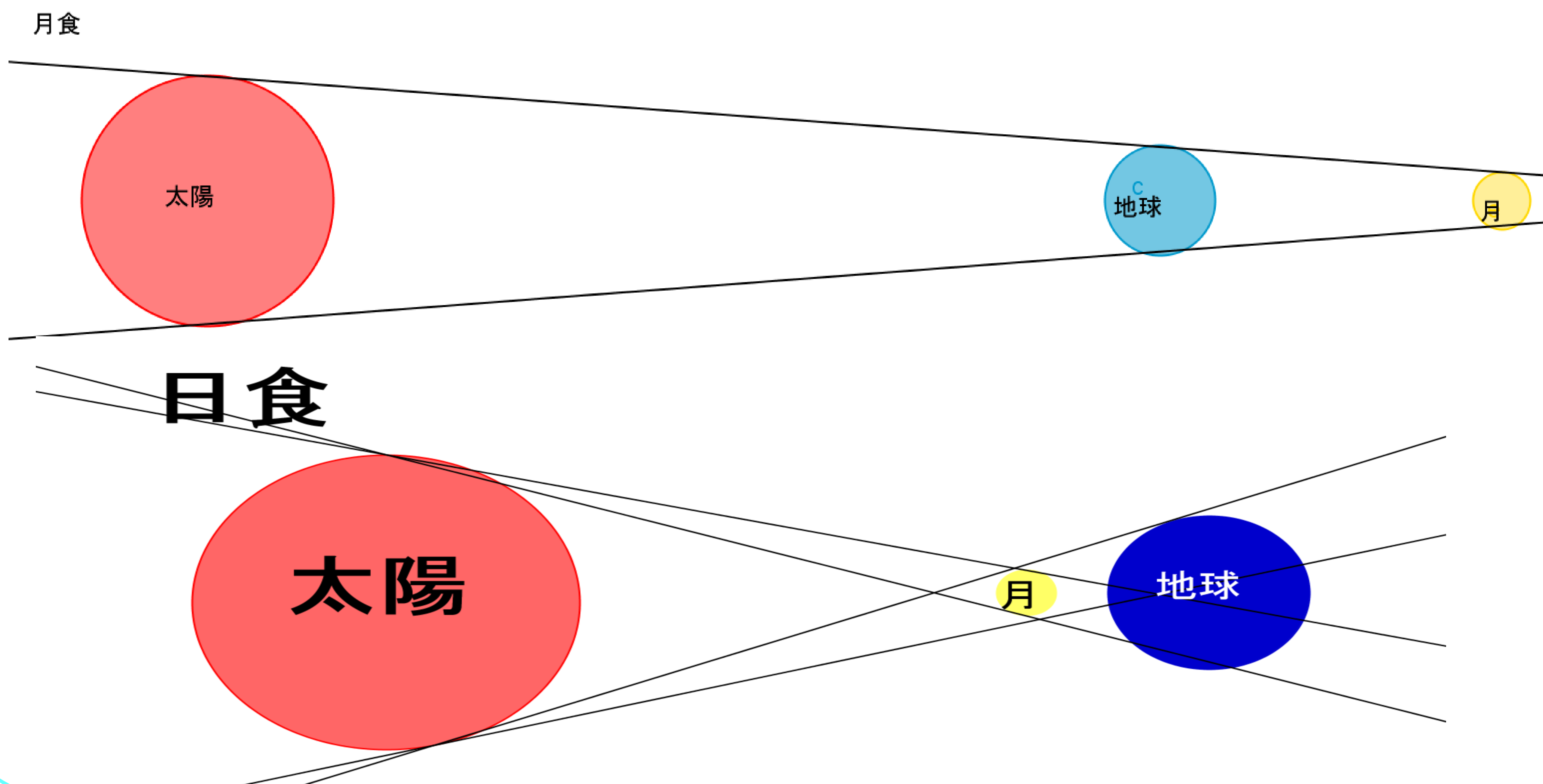
Lunar eclipse ~Relationship of the sun,the moon,the earth~

70th 1年 A組

丁・庚班

数学的内容

The mathematical contents



英語訳

English translation

About the Lunar Eclipse, shape of the sky is circle and the Earth is there in the center. For example, what the sky wraps around the Earth is like the egg. Sun, Moon, Mercury, Venus, Mars, Jupiter and Saturn are around the Earth. When the sun move an angle, the moon move about an angle of 13
15 days later, I measured the angle of the sun and the moon.They were an angle of 182° and just the opposite.
They are facing.It is arranged in the order of moon, earth, sun.
Sunlight cannot shine the moon.So the moon became a lunar eclipse.
When the moon goes out of shadow of the earth the sun shine the moon again.
When they are in a straight line, the moon became a total lunar eclipse.Lunar eclipse always happens 15 days.The lunar eclipse happens the spot of the eclipse and eclipse crossing.
The full moon can be seen for three days 14 to 16.During the time it will be a total eclipse. If it goes past the line of an angle of about 13, It doesn't go on its right way and it can't go into the Earth shadow. Appearance of the solar eclipse is different by the observation location to. At the time of eclipse of the moon, the shape of the earth completely cover the moon, so appearance of the moon eclipse is same bi the observation location to.
The eclipse of the moon has five stage. First, it begins to be covered by the shape of the earth. Second, it is completely covered by the shape of the earth. Third, it is covered in maximum. Forth, a part of the moon begins to shine. Fifth, its shape returns to original form. If it's the case that the solar calendar of the eclipse of the moon, at first the eclipse of the moon happens in the northeast, and it overlaps in the northwest. On the other hand if it's the case that the lunar calendar of the moon, at first the lunar calendar of the moon happens in the southeast, and it overlaps in the southwest. More than 80% of the whole happens in the east and it overlaps in the west. Like others, it can be spoken logically.

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The farer the moon goes away from the earth, the sun farer from the earth.  
A diameter of the sun is long. Therefore a diameter of the sun is as large as a diameter of the moon seen from the earth, So the earth is smaller than the sun.

高橋・額賀

まとめ・今後の課題・感想

まとめ Summary

初めにたとえを用いて地球を中心とした宇宙との関係を示し、そのあとにこの問題での位置関係を図のように与えた。この問題では地球と太陽と月を主題に月食の話が繰り広げられている。この規矩分等集は明確な問題は出てこないが、太陽と月の進み方から月食のメカニズムを読み取ることができる。

At first, it shows space relationship cantered on the earth by using a metaphor. The positional relationship between this issue we gave as shown. The *Kikubuntousyu* is not come out clearly problem, it is possible to read the mechanism of lunar eclipse from to how the sun and moon.

今後の課題 Future problem

現代語訳までは、順調に進んでいたが、英語訳と空間図形における図の説明の仕方はとても難しく手こずってしまった。英語力と数学力の応用が必要だと思った。

Until modern translation, which had progressed smoothly, the description of figure in English translation and the space graphic way is very difficult, we've struggling. I thought Application of English and mathematics force was necessary.

感想 Our impression

この活動を通して月食のメカニズムについて知るだけでなく、一から現代語訳、英訳、数学への変換することの大変さを知ることができました。

Not only know about the lunar eclipse mechanism through this activity, translated into English, we were able to know very much of it to be converted to modern translation, translated into English and mathematics from one.

