

[Scene 1: Classroom]

Student_1: October...octopus...October...octopus...

Student_2: Hey, what are you talking about?

Student_1: I am thinking why the prefixes of the words October and octopus are OCT, but October means the tenth month of a year, while octopus has eight legs. Eight does not equal ten, right?

Student_2: Oh my god!!! I haven't thought about that before!!! It's amazing!!

Mr. Chan: Hey~ I'm here and I can solve your problem!!! Let me tell you a story by time

** {Time travelling effect}*
travelling!!!
[Scene 2: In 4000BC (before Christ)]

C: We need to count the days for planting! We have too many people in our village!
We need a better day-counting method to have more food!

D: Yes, you're right! We have hot days, warm days and cold days! We only want to know about the warm and hot days for farming!

C: Let's start our project to help all the people to know when the best farming time is and to have more food in the future. We need to collect BIG DATA for it.

D: WOW, this project may last for years... let me prepare some stones to count...

C: Today is very hot! Let's have a red stone...

D: How about have a blue stone as a cold day?

C: Good idea!

[Scene 3: After thousands of years... in 3000BC]

E: Thanks to our ancestors, we now know that we can roughly count the days as 4 different groups, which are Spring, Summer, Autumn and Winter!

F: We even stand on our ancestors' shoulders! We can relate the farming days to the sky! The biggest thing in the sky is the SUN! Next is the MOON, especially when it keeps on appearing and disappearing day by day!

E: Let's continue collecting BIG DATA to improve the day counting!

[Scene 4: After thousands of years... in Rome, around 600BC]

KING_1: We don't do planting in winter. So, let's make a calendar to count the farming days only!

Servant_1: Yes my king. Let's name ONE cycle of farming days as a YEAR!

KING_1: Your idea is granted.

Servant_2: My king, I know TEN is your favourite number. 10 also means perfect in our mathematics system. How about we use 10 months as a year?

KING_1: As you wish, your idea is also granted!

Servant_3: We are Romans, we are warriors! In the name of MARS, our GOD of War!

KING_1: I got it! I've got a warrior heart! To be the leader of warriors, he must hold a march! Let me grant the first month of the year as MARCH!!

Servants123: I totally agree with you, my king.

Servant_4: Let's name the rest of the months! They are April the second, May the third, June the fourth.....

Servant_5: July the fifth, August the sixth, September the seventh!

Servant_6: And also October the eighth, November the ninth and December the tenth!

Servant_7: Yes! We won't count the winter, then we will only have around 300 days a year!

[Scene 5: After some years... in Rome, around 300BC]

Farmer_1: Oh my god... My plants are so weak...

Farmer_2: Me too... Without counting the exact days in winter, it is so difficult to find the first day of a year accurately...

Farmer_1: Exactly! Not knowing the first spring day, I missed the farming days! Sometimes, a whole month is wasted and less food is grown...

Farmer_2: We must go tell the King to change the calendar!!!

KING_2: A good leader should listen to his people! I've heard what you say! But well... do you have any ideas how to modify?

Farmer_1: It is easy: just add back the winter days! From the wisdom of our ancestors who studied the sky, one of the best ways is to follow the cycles of the sun and the moon!

Farmer_2: I agree! We should have 355 days a year then!!

KING_2: I am sorry for your plants and also my people... I permit changing the calendar as you wish! Hmmmmm... I will add two more months before March. I will name them as January and February!

Farmer_2: What a good name, my king! January is related to Janus, the god of beginning and transitions!

Farmer_1: And February is named after Februa, our festival dedicated to springtime cleaning and washing!

Farmers12: Wise is my king!

[Scene 6: After some years... In Rome, around 40BC]

Scientist_1: I invented a machine to measure a year very very accurately! It should be 365.24219 days for a year!

Scientist_2: By my observation of the stars and the sky, I believe this calculation is very true! But 0.24219 day is not an integer, people would be so confused!

King_3: By my honour name of Julius Caesar, as this is similar to 0.25 day, I believe we can count 365 days as a year first! And we can add one more day to February for every four years!

Scientists12: Wise is my king! Let's call the year with an extra day as LEAP Year!

* { [Scene 7: Back to nowadays] Time travelling Effect }

Student_1: Thank you for the time travelling! I know why October means the tenth month of a year now! It's because January and February are added after the 10-month system was invented!

Student_2: Mr. Chan, I still have a problem! There is still some error between 0.24219 day and 0.25 day! Then the calendar is still not accurate enough!! Are there ways to minor the error?

Mr. Chan: Of course! In 1582, scientists decided to add one more rule to deal with such error:
for every 100 years, if that year is not divisible by 400, then that year will not be a
leap year! For example, 2000 is a leap year, but 1900 is not a leap year!

Students12: Thank you so much, Mr. Chan!!

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