

History of the universe



You are going to answer the following questions: *How old is the universe? And when did a number of important events in the universe take place?*



1 *What is a year?*

a How many months are there in a year? _____ months

b In which month is your birthday? _____

c What do you think is old?

2 *Timeline of the universe*



You are going to make a timeline of the universe.

First of all you need to calculate the units of time that make up a year on Earth.

a Write your answer in the space provided.

A year has _____ months.

A year has _____ weeks.

A year has _____ days.

A day has _____ hours.

An hour has _____ minutes.

A minute has _____ seconds.

b Fill in column 2.

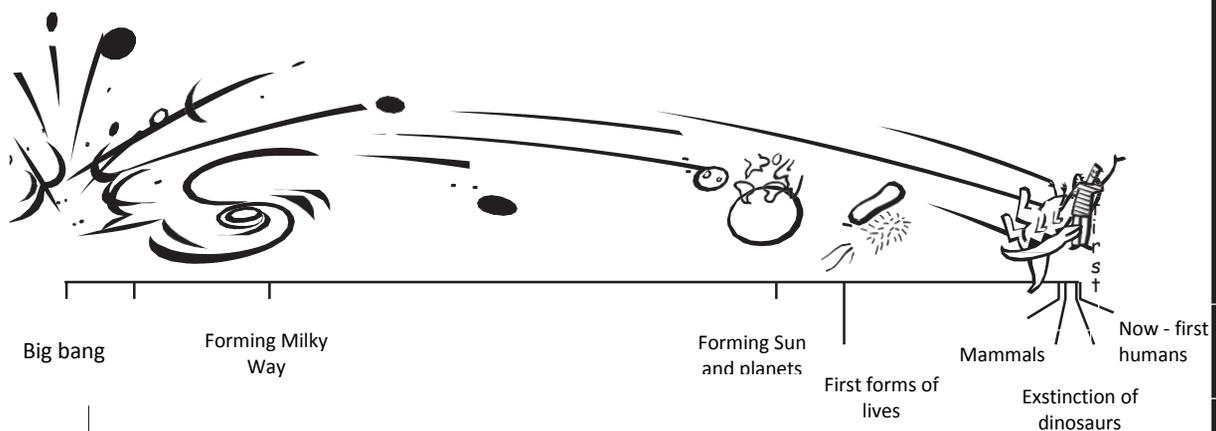
Complete column 2
HERE

Complete column 3
HERE

Time on timeline	Fraction	Time in reality (years)
1 year	1	15 billion
1 month	1/ _____ of a year	15 ÷ _____ = _____
1 week	1/ _____ of a month	300 million
1 day	1/ _____ of a week	300 million ÷ _____ = _____
1 hour	1/ _____ of a day	300 million ÷ _____ = _____
1 minute	1/ _____ of an hour	30,000
1 second	1/ _____ of a minute	30,000 ÷ _____ = _____

c Complete column 3 on the previous page.

Remember: 1 year on the timeline is 15 billion years in reality. Calculate the time in reality by dividing the figure in column 3 by the figure you wrote in column 2. The sums in column 3 are to help you calculate.



d Your teacher will give you an important event in the history of the universe for you to investigate in your group:



How long after the beginning of the universe did your event take place?

Read the example below before answering this question.

Birth of galaxies: 12 billion years ago

EXAMPLE

Step 1

How many years after the beginning of the universe did your event take place?

15 billion – 12 billion = 3 billion

Step 2

How many months after the beginning of the universe is this on the timeline?

3 billion : 1.25 billion = 2.4 months on the timeline.

Step 3

How many days of the partial month is this on the timeline?

31 : 10 (this is a fixed number) x 4 (this is the number after the decimal point in Step 2) =

12.4 days

On the timeline, 12 billion years is represented by 2 months and 12.4 days after the beginning of the universe. The date on the timeline is 13 March.

Time

e	Write down the answers for your event.
	15 billion — _____ billion = _____ billion years after the beginning of the universe.
f	One month on the timeline represents 1.25 billion years.
	On the timeline, how many months after the beginning of the universe did your event take place?
	_____ billion years : -1.25 billion years = _____ months after the beginning of the timeline.
g	In which month of the timeline was this?
	Remember: February is 1 month after January, July is 6 months after the beginning.
	Month: _____
h	Did your event take place in December? yes / no
	If you answered yes go to question i.
	If you answered no go straight to question k.
i	Only answer this question if your event took place in December. On what day did your event take place? December has 31 days. Look carefully at the example in the table in question b and the example on the previous page.
	Day: _____
	If you answered 31 December go to question j.
	If you did not answer 31 December go to question k.
j	Only answer this questions if your event took place on December 31.
	What is the exact time at which your event took place?
	Express your answer in hours, minutes and seconds. The time is: _____

answer question e

CIRCLE the correct answer

k

Make something to attach to the timeline that shows your event.

Attach your event to the appropriate place on the timeline.

3

How old is old?

write your
answers
HERE

a

How old is the universe?



b

How long ago did the Earth come into being?

c

How long ago did the first people appear on Earth?

d

Do you think people have been on the Earth for a long time, or not?

e

Why do you think that?