

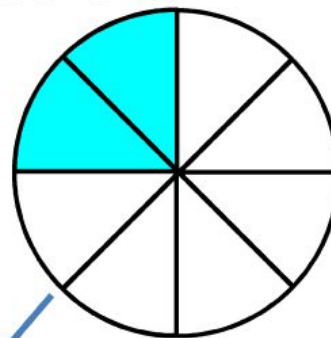
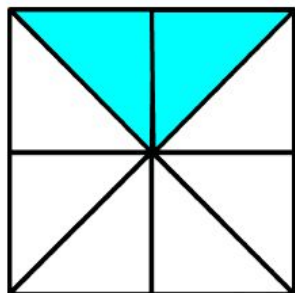
Math

+ - × ÷

Why did or didn't you like
Math at school?

What's the difference
between a fraction and a
decimal?

Two-eighths



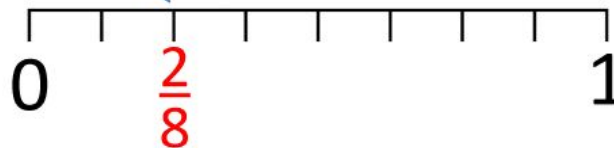
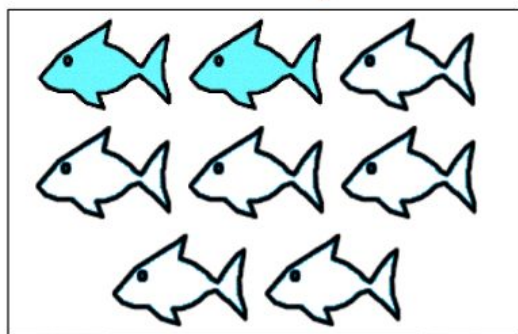
$$\frac{2}{8}$$

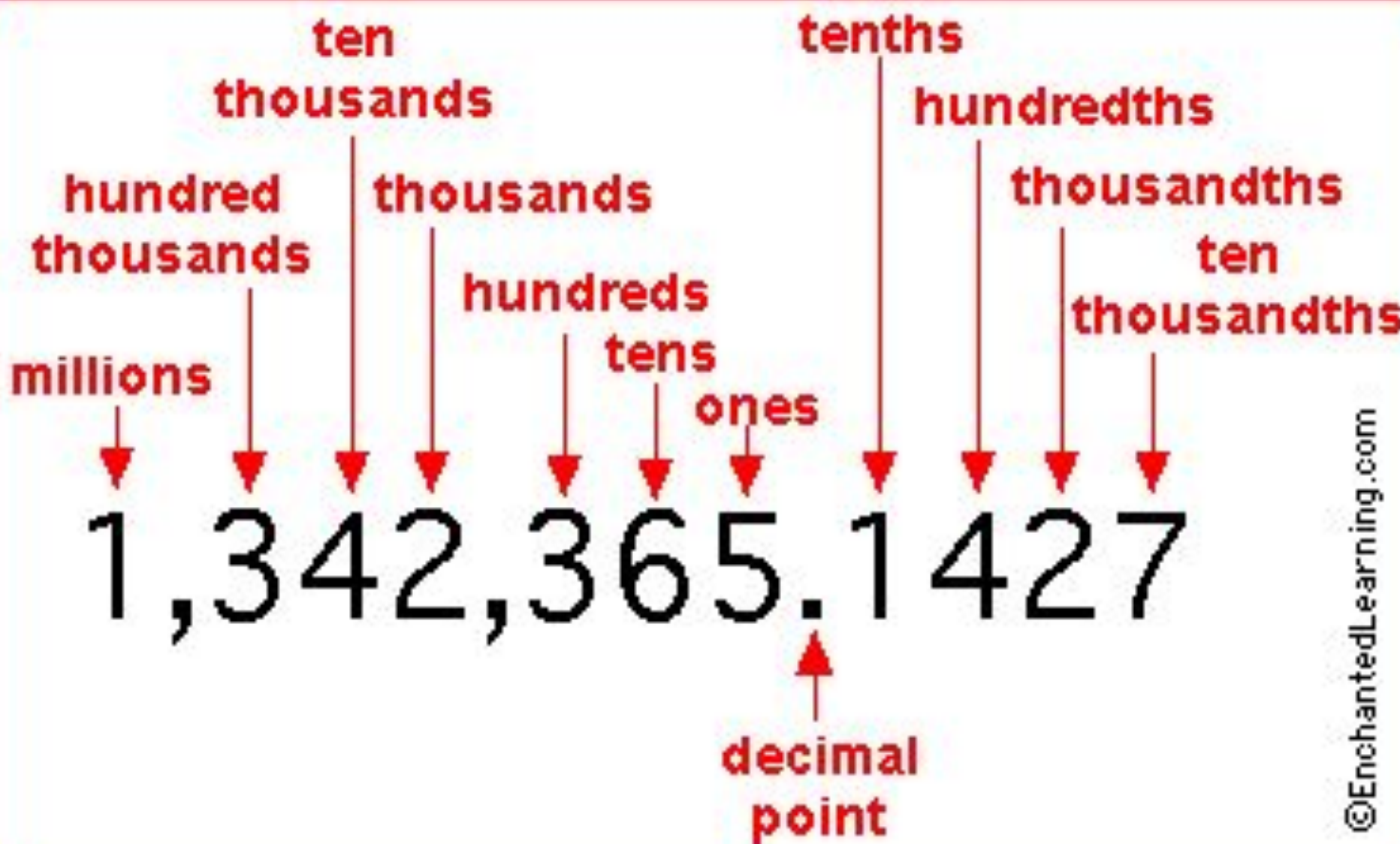
0.25

DECIMAL

25%

PERCENT





Are girls or boys better at
Math?

Do you think Math is a
waste of time now, with
all the computers
around?

Why do people call Math
a language? What
features of a language
does it have?

Why is mental arithmetic important? Where do we use it?



How can you improve
mental arithmetic? Have
you learned a times table
at school?

Times Table - 12x12

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Are there times when two
plus two equals five?

What happens if you
don't round these
numbers?

$$2.25 + 2.26 = ?$$



CHAOS THEORY

In Jurassic Park (1993) a chaos theorist
Ian Malcolm explains the gist of it:



Butterfly Effect



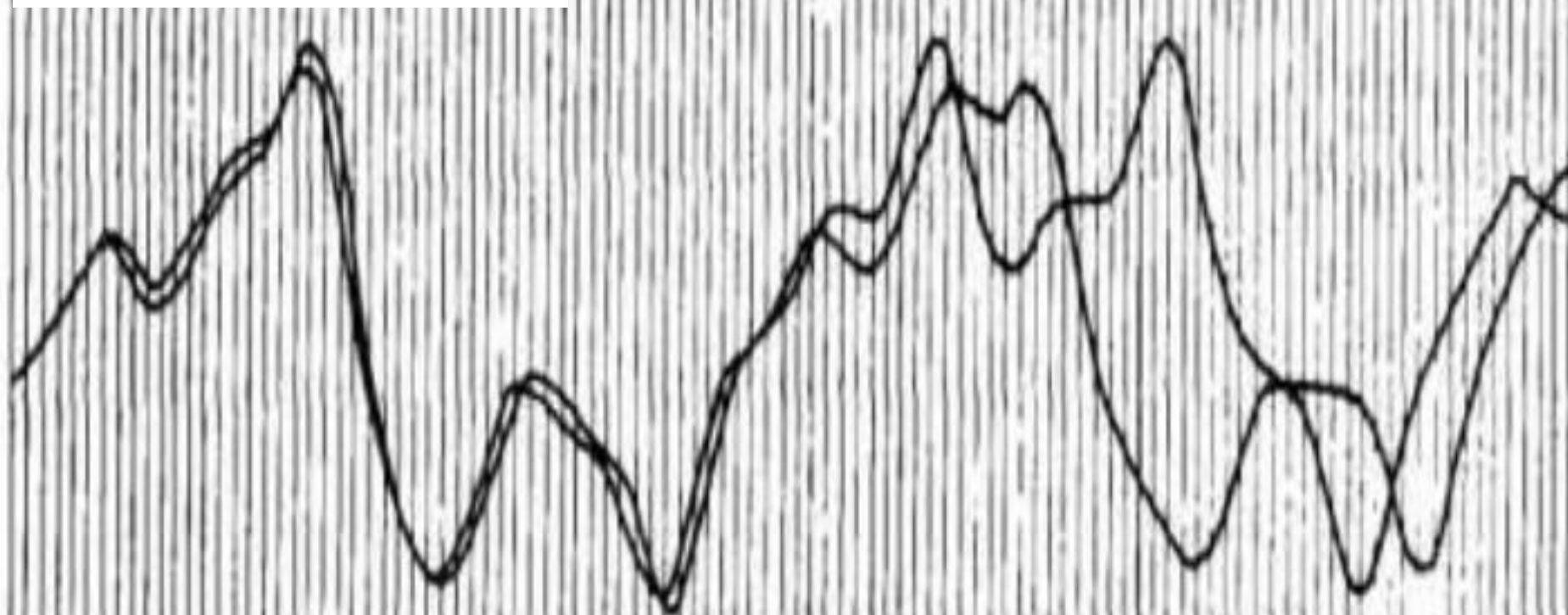
Flap of a butterfly's wing in Brazil can set off a cascade of atmospheric events that, weeks later, spurs the formation of a tornado in Texas



Edward Lorenz

The Butterfly Man

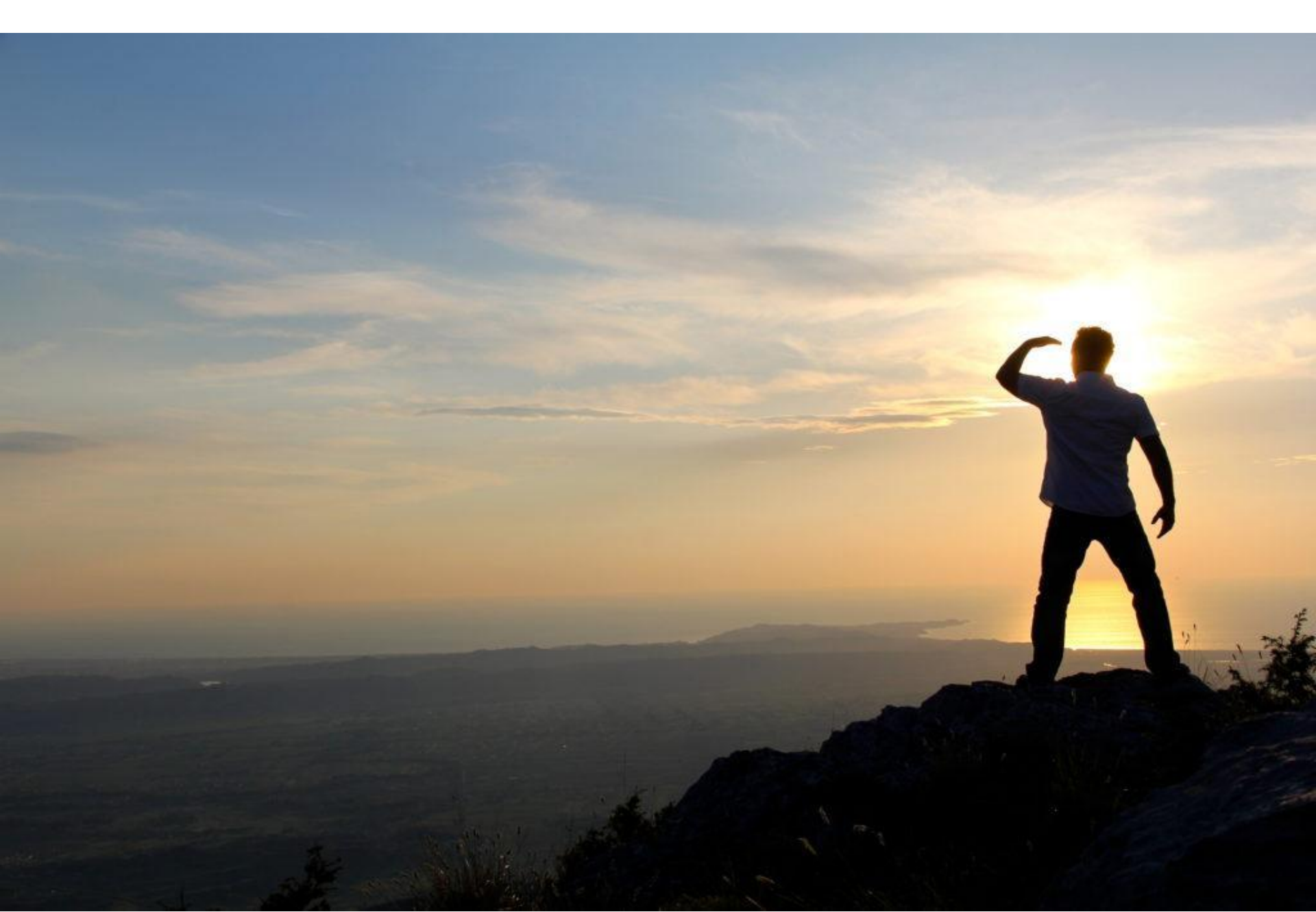
0.506127 → *0.506*



Prediction Horizon

- a length of time beyond which we can no longer accurately forecast something.

What can affect the
Prediction Horizon?



Up until 2008 most
computers were using the
IEEE 754-1985
calculation standard

IEEE 754-1985 could work
with 16 decimals

Current 754-2008 generally
handles up to 32 decimals





How is it possible to
calculate the
probabilities?

Why do we need to
calculate them?

Quantum computers

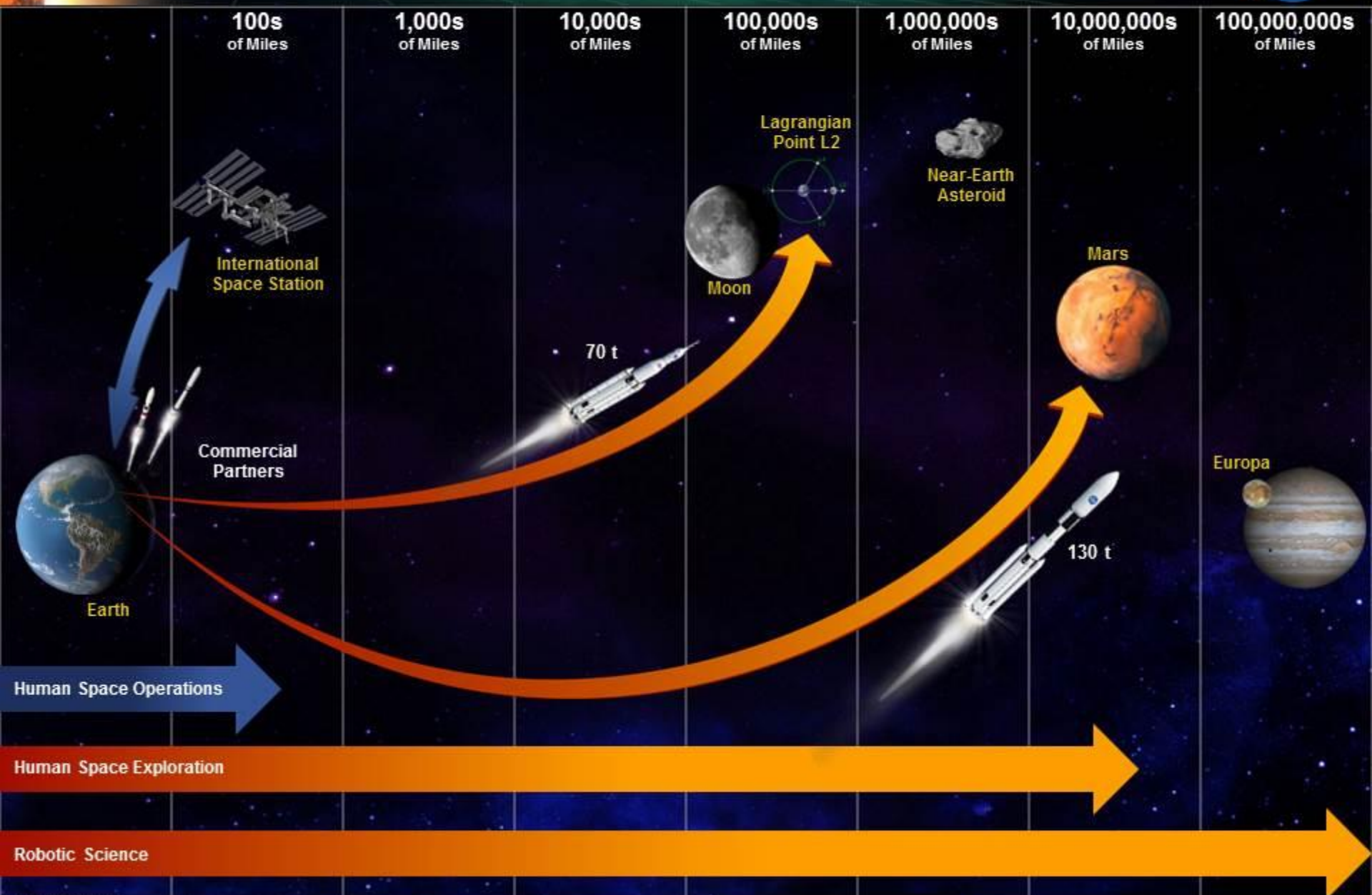


Created from probability
particles called qu-bits,
quantum computers aim
at computing
probabilities, which linear
computers can't
calculate.

Weather



The Future of Exploration



100s of Miles

1,000s of Miles

10,000s of Miles

100,000s of Miles

1,000,000s of Miles

10,000,000s of Miles

100,000,000s of Miles



International Space Station

Commercial Partners

70 t

Lagrangian Point L2



Moon



Near-Earth Asteroid



Mars



130 t

Europa



Earth

Human Space Operations

Human Space Exploration

Robotic Science

Banking



73 583	62	455
429	3 054	3 494
135	95 153	138
93 293	..	720
..	..	12 251
542	..	338
570	..	46



Purchase Behavior





\$99.99

Control Horizon is the length of time which we need to beneficially alter the predicted future

What is Alertness?





Do you often think about
what to do if things don't
go as planned?