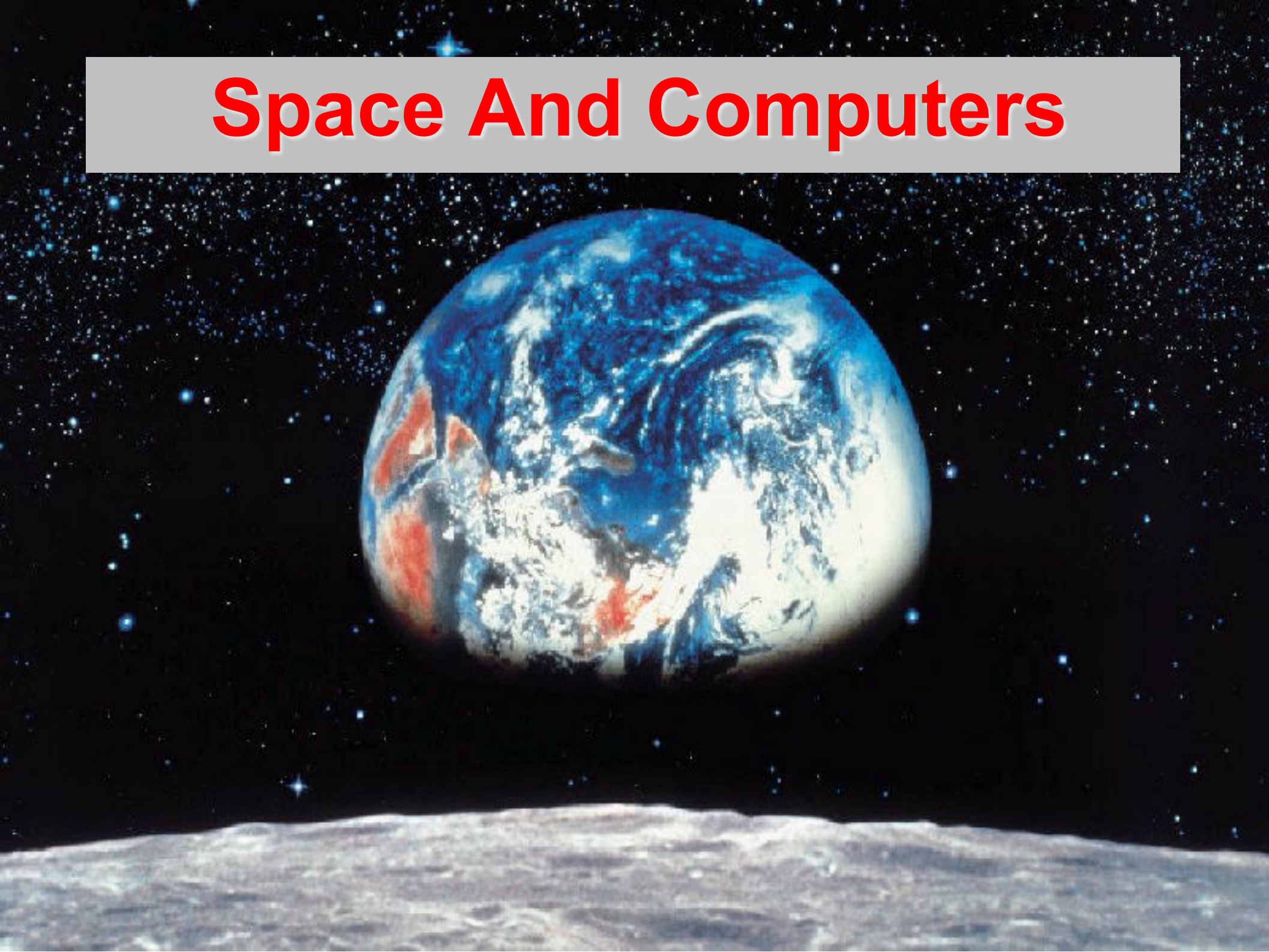
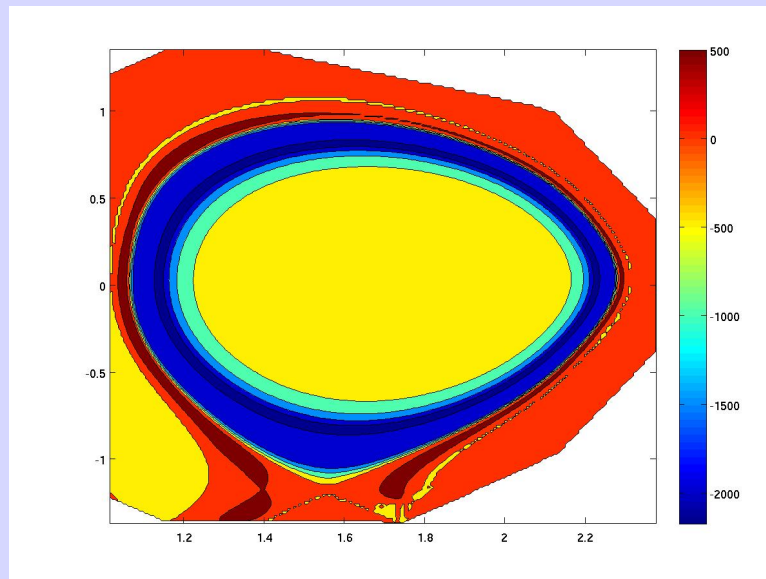


# Space And Computers



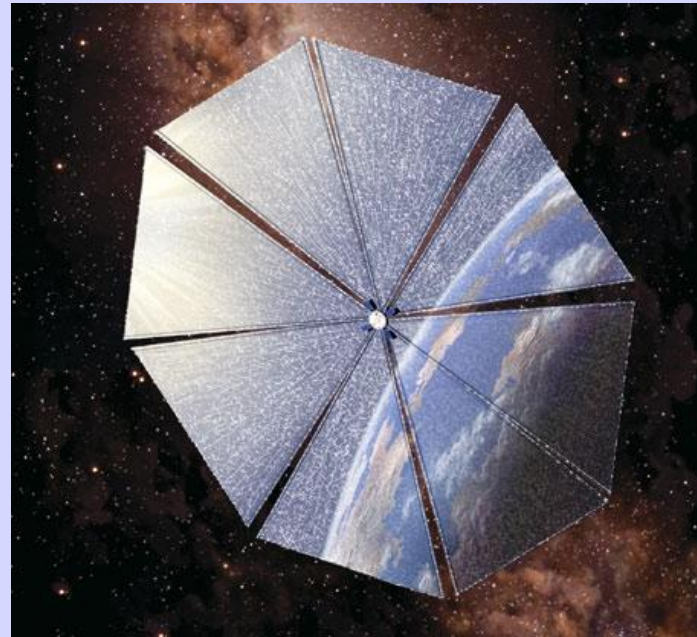
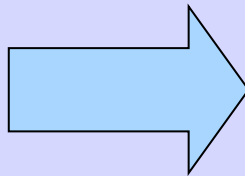
# What Can Satellites Do?

- Communication
- Science
- Explore





- Boats use sails as wind power
- Spacecraft and instead use LIGHT

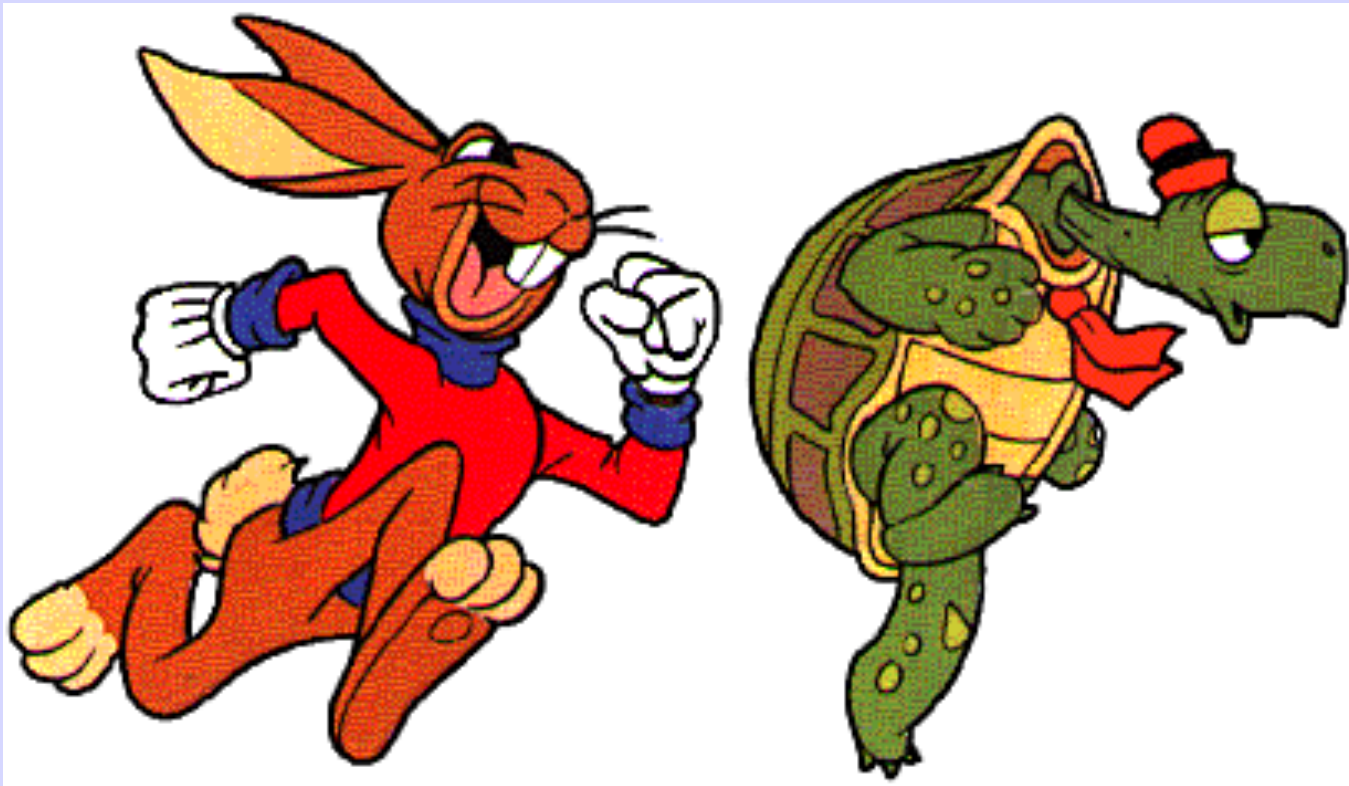


# NanoSail-D In Action!



## Cool Satellite Facts

- How fast do satellites go?



## Cool Satellite Facts

- How fast do ssatellites go?

**18,000 miles per hour!**

- That's 60 times faster than a race car!





# Cool Satellite Facts

- How high in the sky are satellites?



- How high in the sky are satellites?

**22,000 miles up!**

- That's greater than a 1,000,000 story building





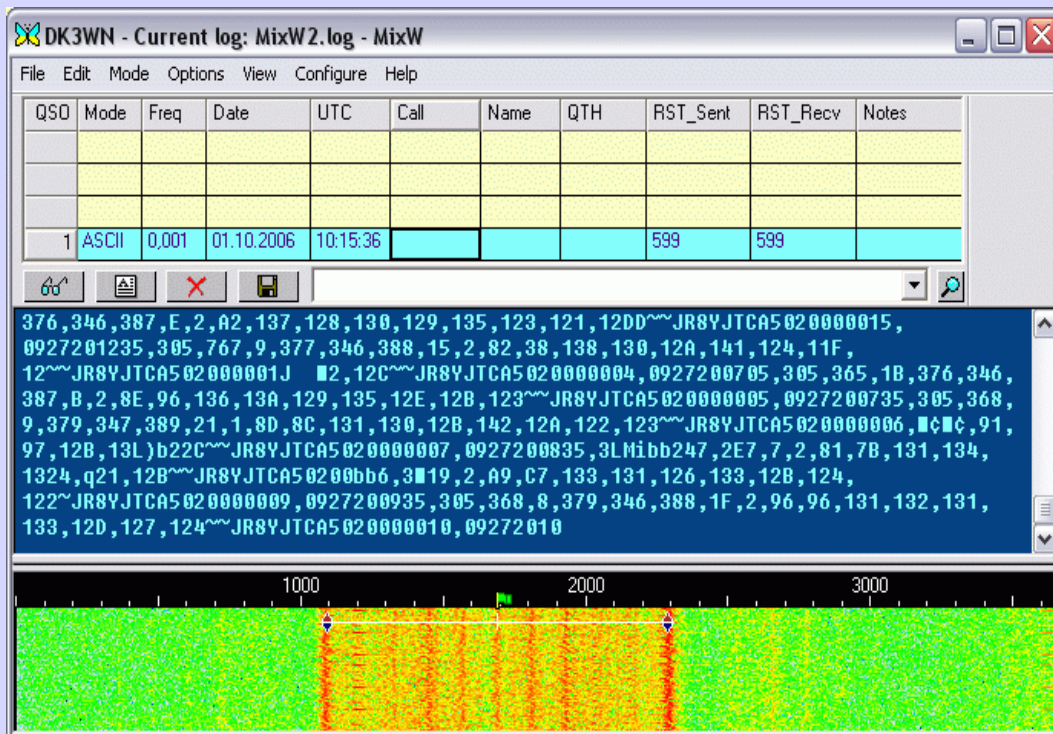
# How Do We Talk To Satellites?

- We use the Radio
- But we don't use stations like 103.3 or 107.3
- Our station is 436.8



# What Do Satellites Sound Like?

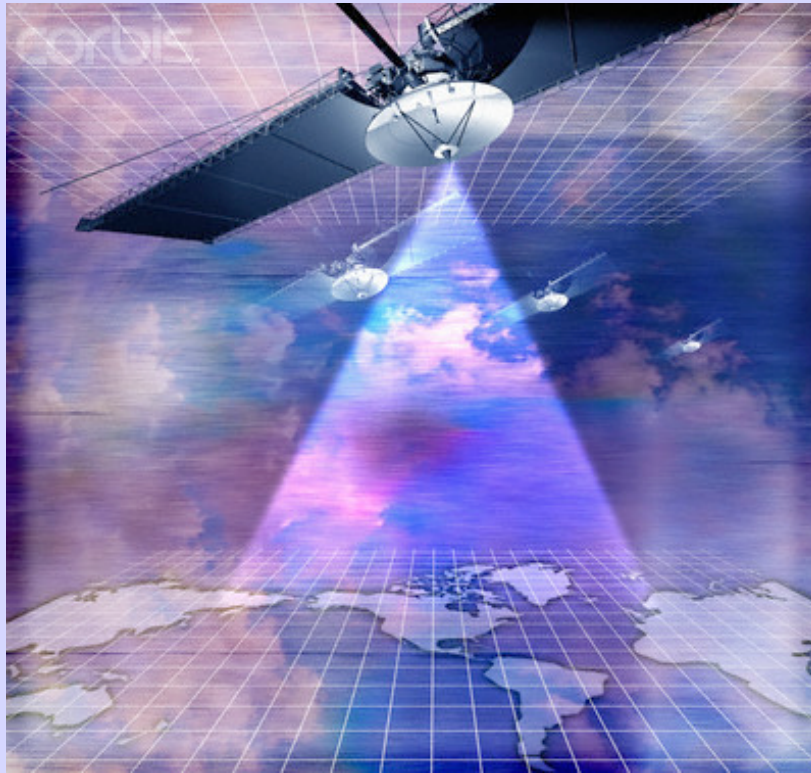
- It uses Morse code to send data



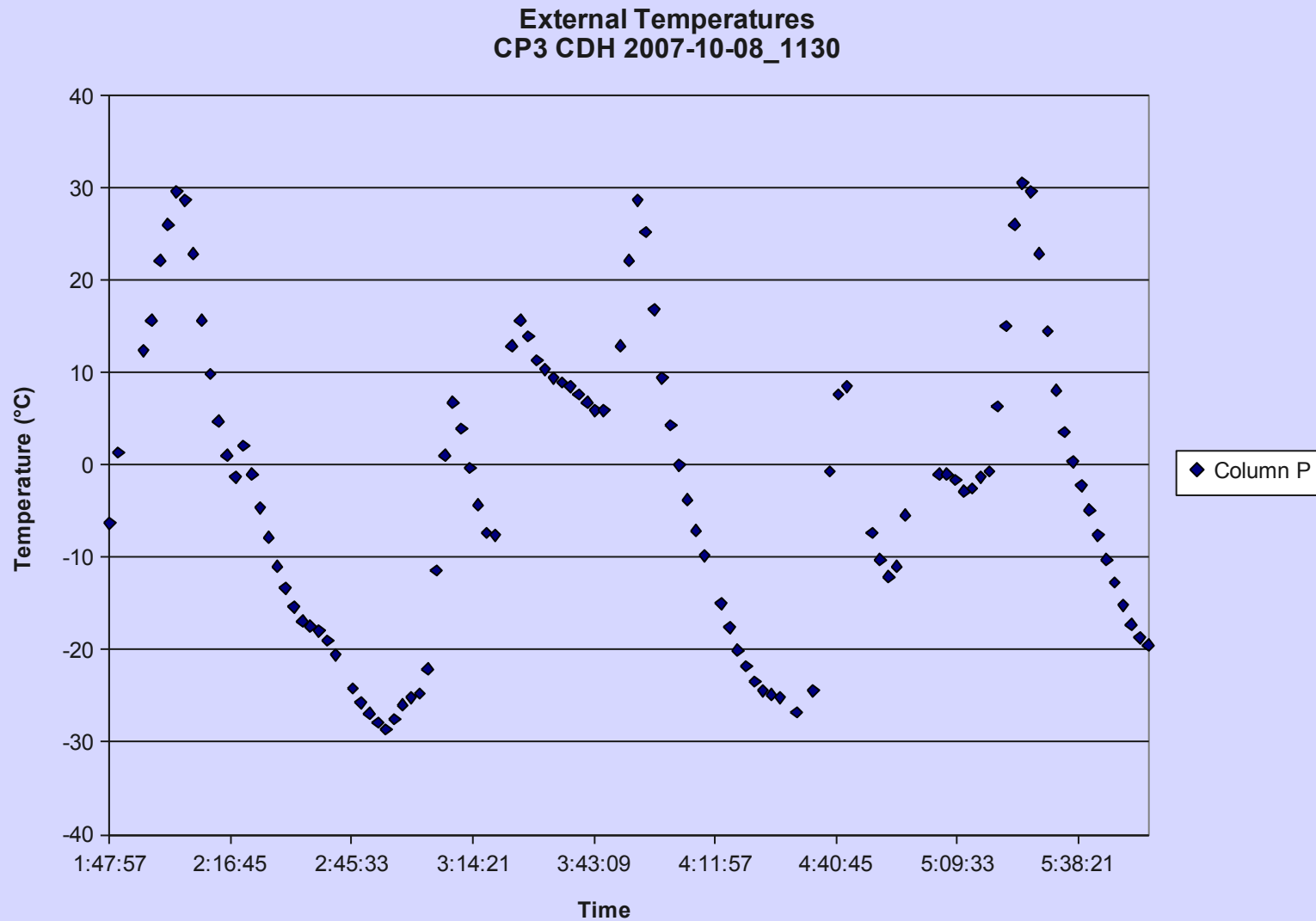
## Morse Code Alphabet The International morse code characters:

A	.-	N	-.	0	-----
B	-...	O	---	1	.-----
C	-.-.	P	.-..	2	..----
D	-. .	Q	-. -	3	...--
E	.	R	.-.	4	....-
F	..-.	S	...	5	.....
G	--.	T	-	6	-....
H	....	U	..-	7	--...
I	..	V	...-	8	---..
J	.-...	W	.-.	9	----.
K	-. -	X	-. -	Fullstop	...--
L	.-..	Y	-. -	Comma	--...--
M	--	Z	-. .	Query	.....

# What Do Satellites Sound Like?



# Real Satellite Data!





# Time For Computers!



# Computer's Blink Once/ Twice

- Computers Don't Think Like Us
- They use the 'Binary' language

1 = Yes

0 = No



# How Does A Computer Do Spell Check?

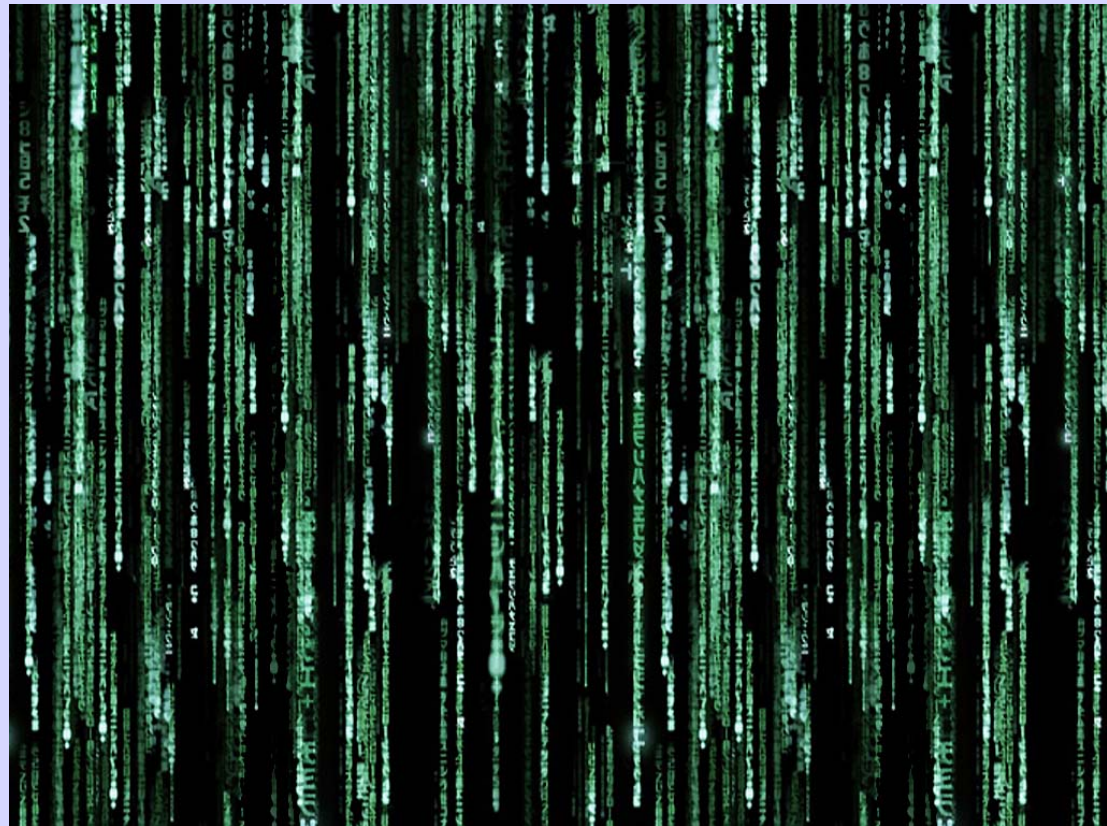
- Why let me talk about it when we can do it for Real





# How Does A Computer Do Spell Check?

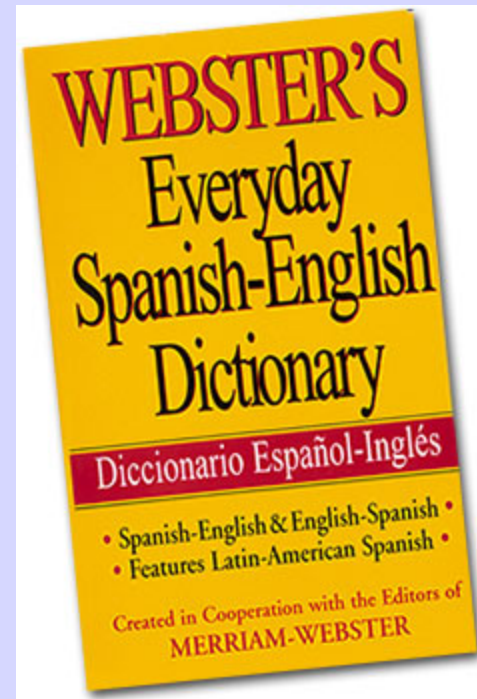
```
for (int i = 0; i < wordsToCheck.length(); i++){  
    for(int k = 0; k < dictionary.length(); k++){  
        if(wordsToCheck.get(i) == dictionary.get(k)){  
            return true;  
        }  
    }  
}  
  
return false;
```





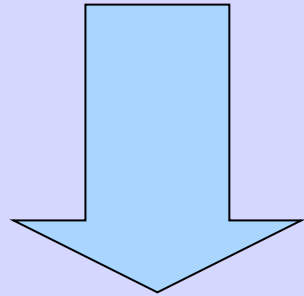
# How Does The Computer Know What I'm Saying?

- That's not the binary language
- We need a translator called the 'Compiler'

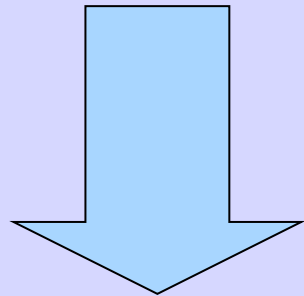


# How Does The Computer Know What I'm Saying?

```
for(int i = 0; i < k.....
```



Compiler



```
1101000101101110
```

# Engineering: What It's All About

- Solve problems that no one has solved before
- Make cool stuff that does cool things



# So You Want To Be An Engineer...

- Can YOU be an Engineer???





# So You Want To Be An Engineer...

- Can YOU be an Engineer???

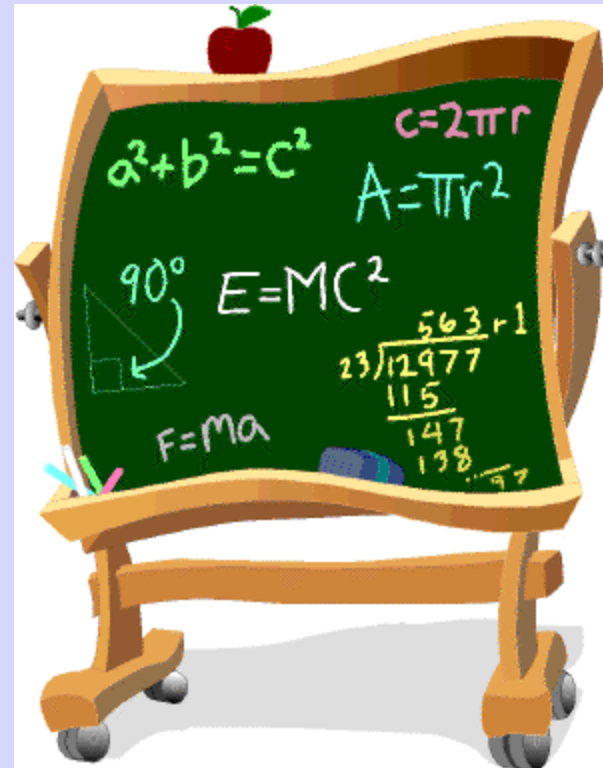
# Of Course!



# YOU Can Be An Engineer

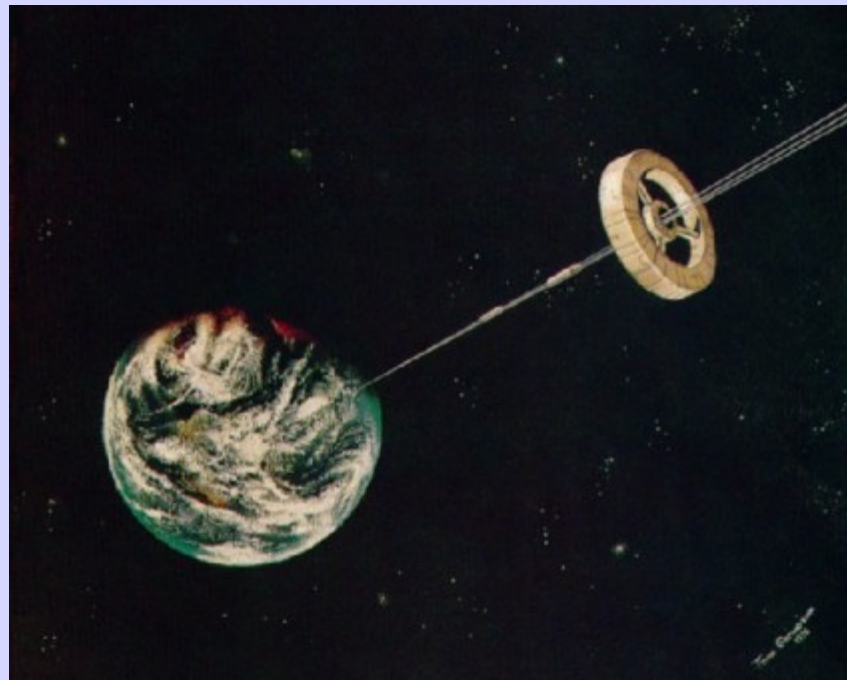
● What should I do to be an engineer now?

- Learn About Math
- Learn About Science
- Ask How Things Work



# We Like CRAZY Ideas

- Crazy ideas always help to solve problems
- Be...
  - Creative
  - Think out of the box



Let's Get You Talking Now

# Anyone Have Questions?

