

**OX** **BARE**  
**CB** **METAL**

# Our agenda

Just 3 programs...

- Counting up
- Counting down
- Reversing a number

# Learning Paper Computer

What does this program do? And how do we make it better?

1 100

2 320

3 902

4 100

5 320

6 902

7 100

8 320

9 902

10 100

11 320

12 902

13 100

14 320

15 902

16 000

# Learning Paper Computer

Not optimal...

1	100	@ Add 1 to ACC
---	-----	----------------

2	320	@ Store in 20
---	-----	---------------

3	902	@ Print ACC
---	-----	-------------

4	100	@ Add 1 to ACC
---	-----	----------------

5	320	@ Store in 20
---	-----	---------------

6	902	@ Print ACC
---	-----	-------------

...

**Funny enough,  
counting *down* from  
an arbitrary number  
teaches us  
something.**

# Learning Paper Computer

Implementing a  
countdown (including  
0)?

1 901

2 902

3 200

4 802

5 000

**Back to that**

**original problem...**

# Learning Paper Computer

Counting up to an  
arbitrary number

1 901

2 320

3 530

4 902

5 520

6 200

7 320

8 530

9 100

10 330

11 520

12 803

13 000

30 001



**Implementing the**

**SFT (4LR)**

**instruction**

**Turn 123 into 321**

**(and other**

**diversions)**

# Learning Paper Computer

Flip this script

1 901

2 350

3 420

4 351

5 550

6 402

7 151

8 360

9 550

10 902

11 423

12 410

13 160

14 902

15 000