Let $a_0 = 2$

$a_1 = 5$

$a_2 = 8$

For $n > 2$ define a_n to be the remainder when $4(a_{n-1} + a_{n-2} + a_{n-3})$ is divided by 11.

Find $a_{2018} \cdot a_{2020} \cdot a_{2022}$

We have $a_n \equiv 4(a_{n-1} + a_{n-2} + a_{n-3}) \mod 11$

So $a_3 = 4(2+5+8)$

$= 4 \times 15$

$= 60$

$= 5$

$a_4 = 4(5+8+5)$

$= 4(18)$

$= 72$

$= 6$

a_0	2	a_{10}	2
a_1	5	a_{11}	5
a_2	8	a_{12}	8
a_3	5		
a_4	6		
a_5	10		
a_6	7		
a_7	4		
a_8	7		
a_9	6		

$$a_5 = 4(6+5+8)$$
$$= 4(19)$$
$$= 76$$
$$= 10$$

$$a_6 = 4(10+6+5)$$
$$= 84$$
$$= 7$$

$$a_7 = 4(10+6+7)$$
$$= 92$$
$$= 4$$

$$a_8 = 4(10+7+4)$$
$$= 84$$
$$= 7$$

$$a_9 = 4(7+4+7)$$
$$= 6$$

$$a_{10} = 4(6+7+4)$$
$$= 68$$
$$= 2$$

$$a_{11} = 4(2+6+7)$$
$$= 60$$
$$= 5$$

$$a_{12} = 4(5+2+6)$$
$$= 52$$
$$= 8$$

and we've returned to the start, thereby identifying a repeating pattern

$a_0 \to a_9$

$a_{10} \to a_{19}$

$a_{20} \to a_{29}$

etc

So $a_{2020} = a_0 = 2$

$a_{2022} = a_2 = 8$

$a_{2018} = a_8 = 7$

and therefore the required product is

$$7 \times 2 \times 8 = \boxed{112}$$