



Компютърно моделиране на коледна тема чрез блоково програмиране

Евгения Сендова, Цветелин Андреев



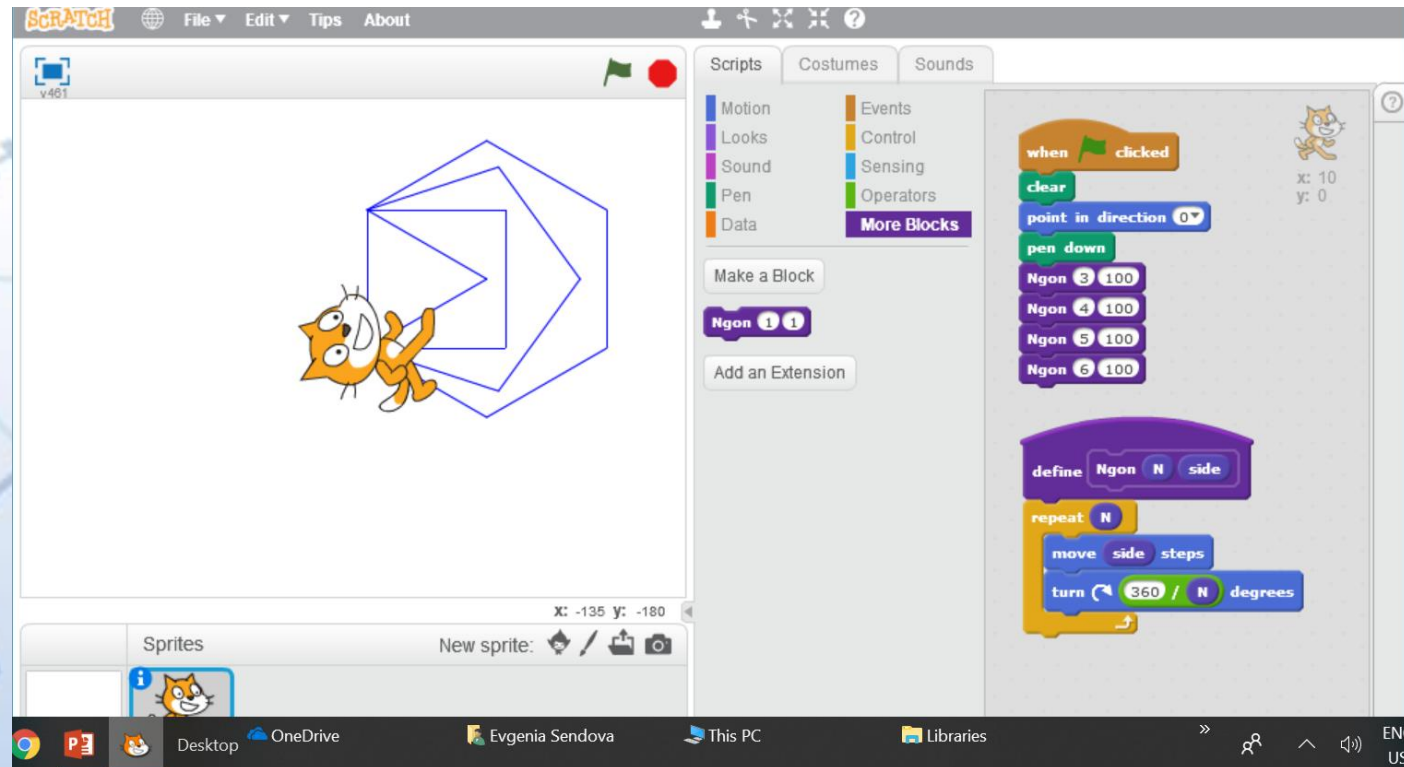
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Да направим правилни N-ъгълници в средата Scratch



The screenshot shows the Scratch IDE with a script designed to draw a regular polygon. The main stage displays a blue regular polygon with the Scratch cat character positioned at its center. The script in the right-hand pane is as follows:

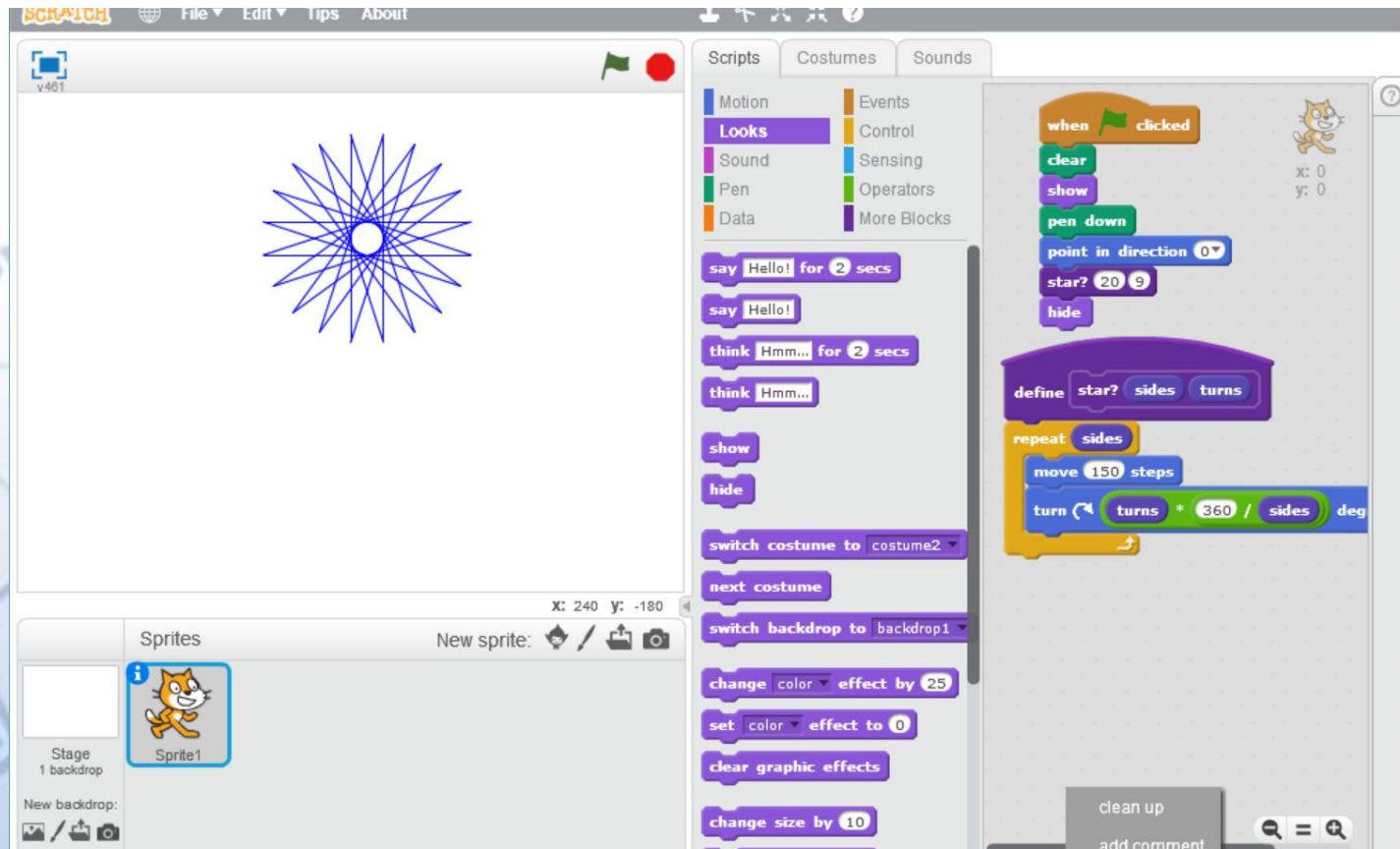
```
when green flag clicked
  clear
  point in direction 0
  pen down
  Ngon 3 100
  Ngon 4 100
  Ngon 5 100
  Ngon 6 100

define Ngon N side
  repeat N
    move side steps
    turn 360 / N degrees
```

The 'Ngon' blocks are purple, indicating they are custom blocks. The 'repeat' block is yellow, and the 'move' and 'turn' blocks are blue. The 'turn' block is set to 360 / N degrees. The 'pen down' block is green. The 'point in direction' block is set to 0 degrees. The 'clear' block is green. The 'when green flag clicked' block is orange.



А сега да направим N-лъчни звезди



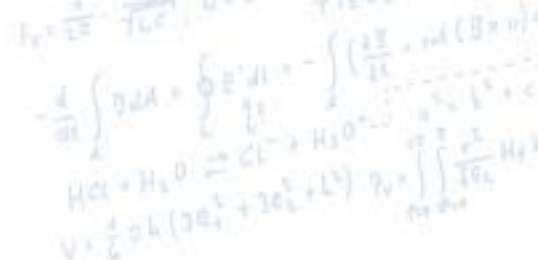
The screenshot shows the Scratch programming environment. The stage displays a blue star shape with 20 sides and 9 turns. The code blocks are as follows:

```
when green flag clicked
  clear
  show
  pen down
  point in direction 0
  star? 20 9
  hide

define star? sides turns
  repeat sides
    move 150 steps
    turn turns * 360 / sides deg

switch costume to costume2
next costume
switch backdrop to backdrop1
change color effect by 25
set color effect to 0
clear graphic effects
change size by 10
```





Направете експерименти и попълнете таблицата!

Брой страни N	Обороти K	Звезда с N лъча ли е?
5	1	
5	2	ДА
5	3	
5	4	
5	5	
6	1	
6	2	
6	3	

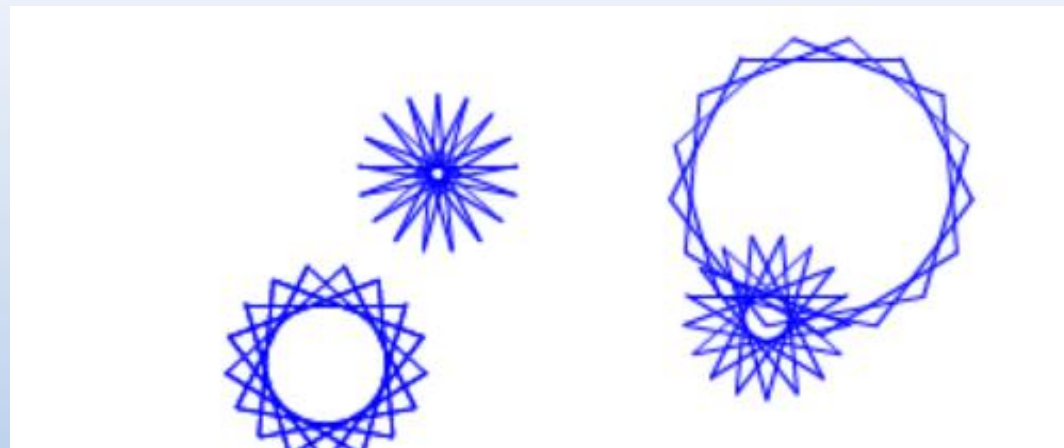


Продължете таблицата и се опитайте да направите:

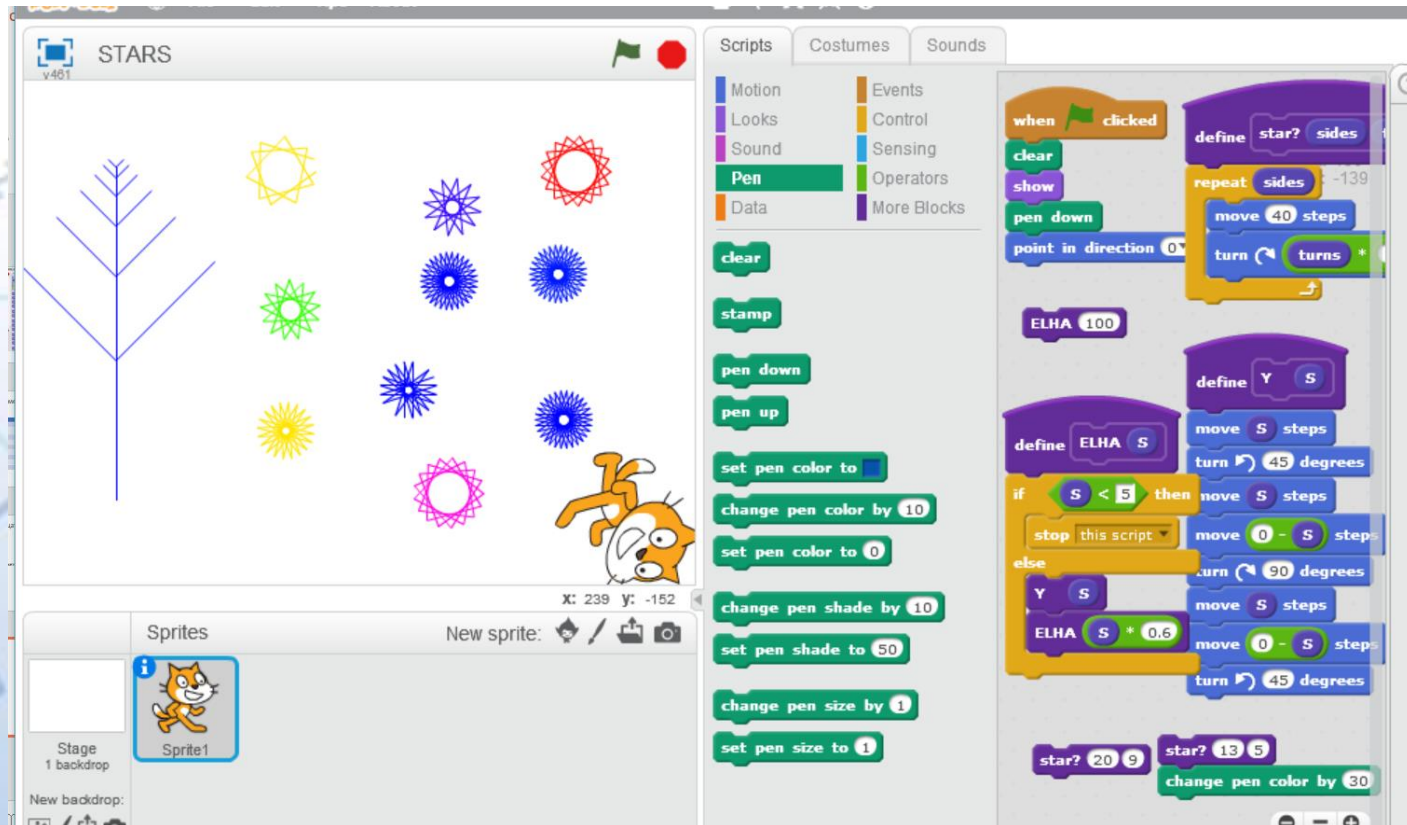
20 -лъчка с остри лъчи

15-лъчка с плитки лъчи

Колко различни 17-лъчки можете да
получите?



Да направим елха и да я украсим!



The screenshot shows the STARS programming environment. The stage displays a blue tree and several colorful star-like decorations. The script editor on the right contains the following code:

```
when green flag clicked
  clear
  show
  pen down
  point in direction 0 degrees
  define star? sides
  repeat sides
    move 40 steps
    turn 45 turns
  ELHA 100
  define Y S
  move S steps
  turn 45 degrees
  if S < 5 then
    stop this script
  else
    turn 90 degrees
  Y S
  ELHA S + 0.6
  move 0 - S steps
  turn 45 degrees
  star? 20 9
  star? 13 5
  change pen color by 30
```