ERN Report

Question 5:

The efficiency resource number (ERN) equates to the size of the grid and the number of starting alive squares in a simulation. So, if we have a 30×30 grid and 25 alive squares, then the ERN is 30+30+25 = 85. Identify the lowest possible starting ERN for each of the following:

Block, Beehive, Blinker, Toad, Spaceships, Glider, Lightweight Spaceship (LWSS)

(*additional guidance: please note that you are extending your previous questions with a random distribution at the start. Furthermore, an interesting observation to make would be determining the lowest ERN using several different grid sizes*)

Block

ERN: 2 + 2 + 3 = 7

2 × 2 grid with 3 starting alive squares
recorded simulation:

`20241017-175725-pattern-block-1.txt`

Beehive

ERN: 4 + 3 + 4 = 11

4 × 3 grid with 4 starting alive squares

recorded simulation:

`20241017-180800-pattern-beehive-2.txt`

Blinker

ERN: 3 + 4 + 3 = 10

3 × 4 grid with 3 starting alive squares

recorded simulation:

`20241017-181753-pattern-blinker-1.txt`

Toad

ERN: 6 + 6 + 6 = 18

6 × 6 grid with 6 starting alive squares

recorded simulation:

`20241017-182400-pattern-toad-4.txt`

Spaceships

Glider

ERN: 3 + 4 + 5 = 12

3 × 4 grid with 5 starting alive squares

recorded simulation:

`20241017-183012-pattern-glider-1.txt`

LWSS

~~ERN: 6 + 11 + 16 = 33~~

~~6 × 11 grid with 16 starting alive squares~~

ERN: 5 + 6 + 9 = 20

5 × 6 grid with 9 starting alive squares

recorded simulation:

`20241017-203301-pattern-lwss-1.txt`