

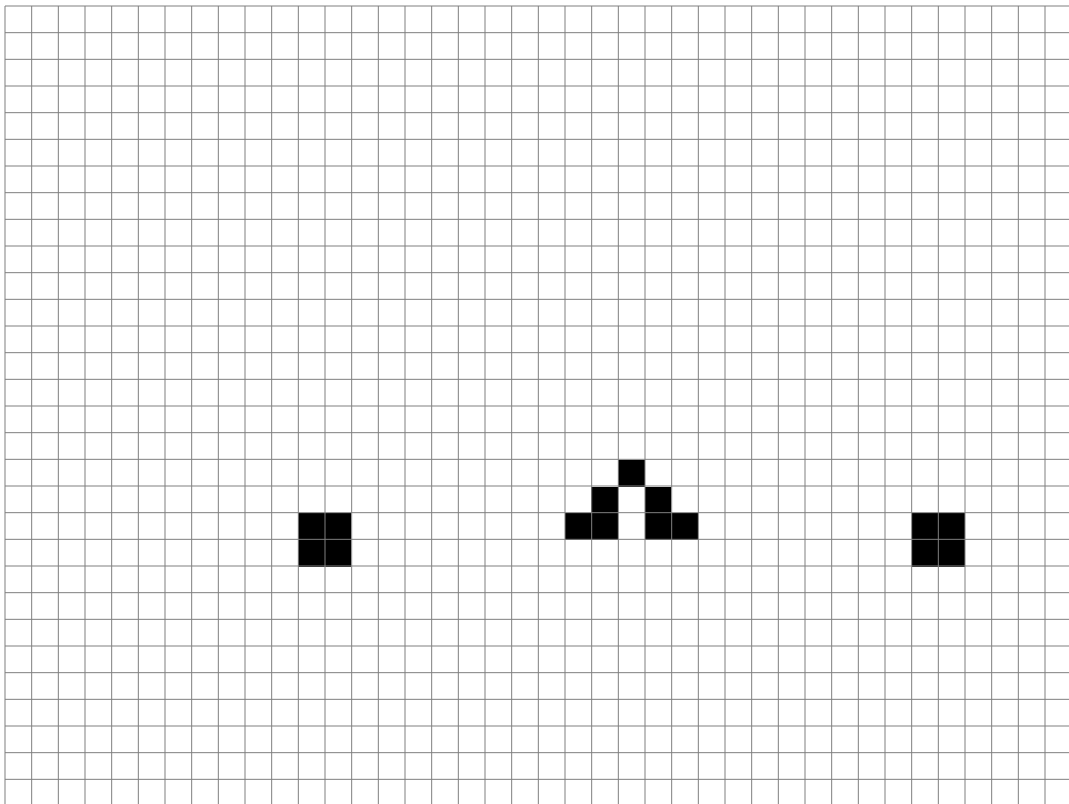
# Great Galloping Gosper Glider Gun

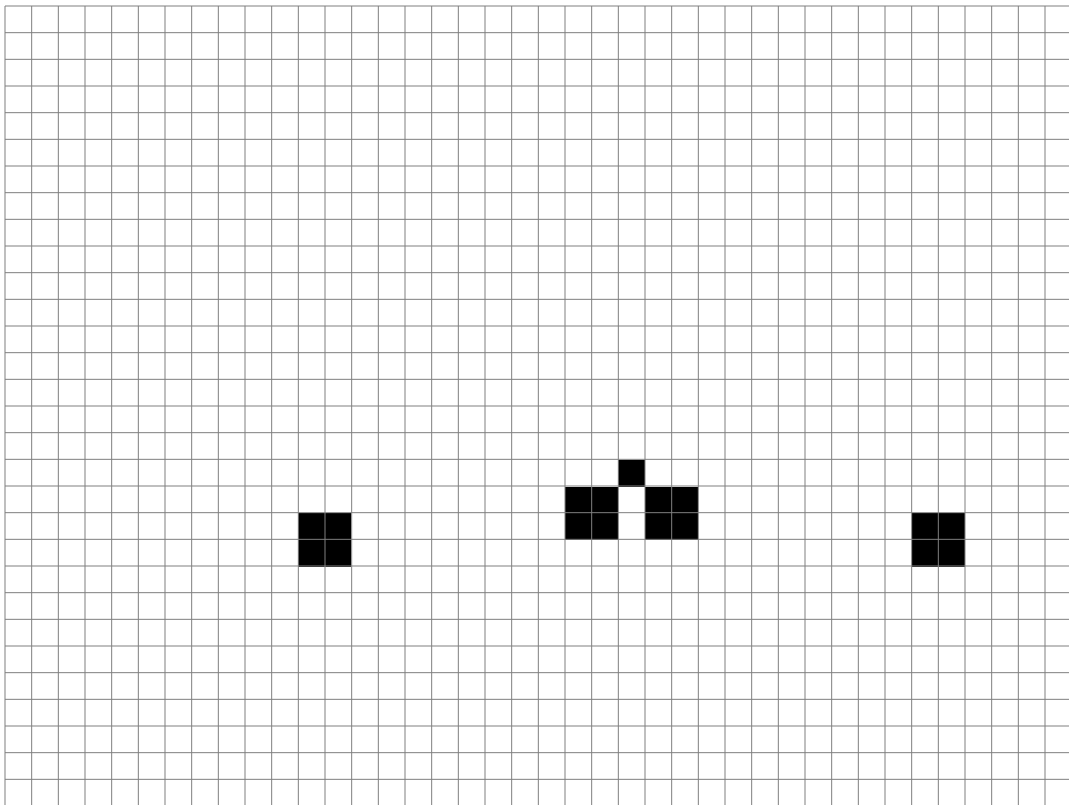
## *a flipbook by Jeffrey Copeland*

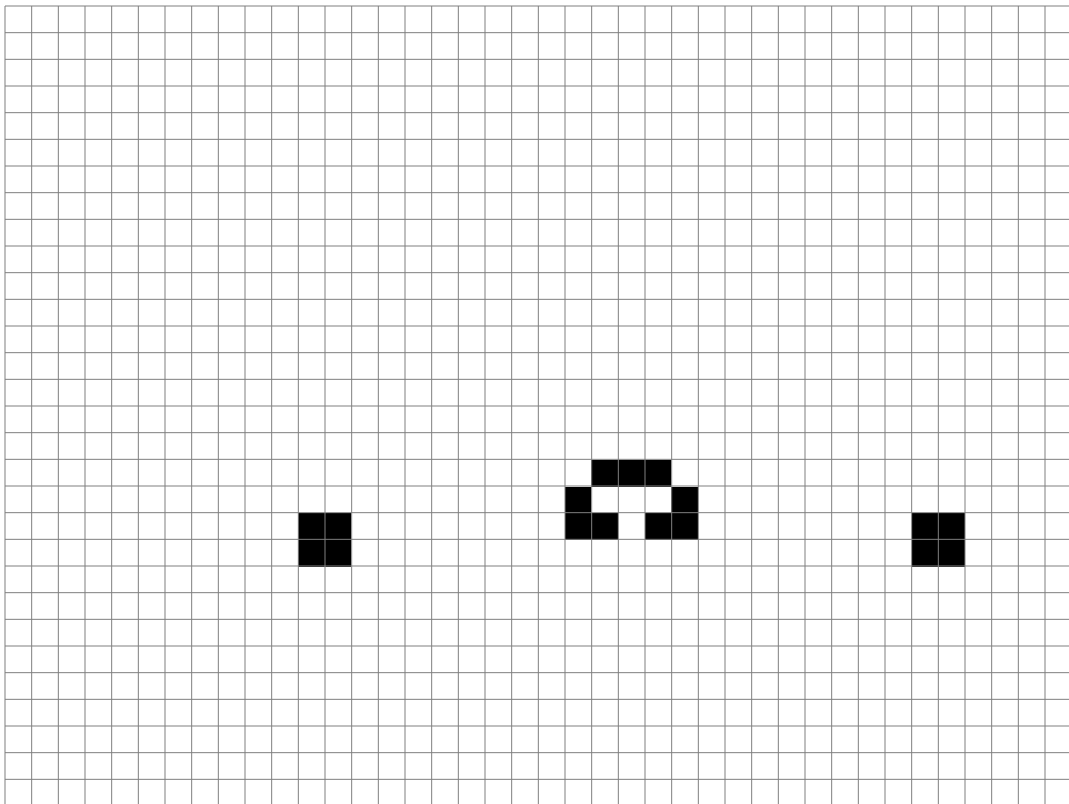
Several weeks ago, I was discussing odd computer languages with my friend and colleague Donn Terry over lunch. The proximate cause of the discussion was something I mentioned to Ned Brooks recently, to wit, that I had managed to come up with a fix for a bad bit of hackery in our corporate printer farm because I was the nearest person who both cared and knew enough of the page description language PostScript. In any event, Donn noted that I might be one of the few people who could knock off an implementation of John Conway's cellular automata game, Life, strictly in PostScript.

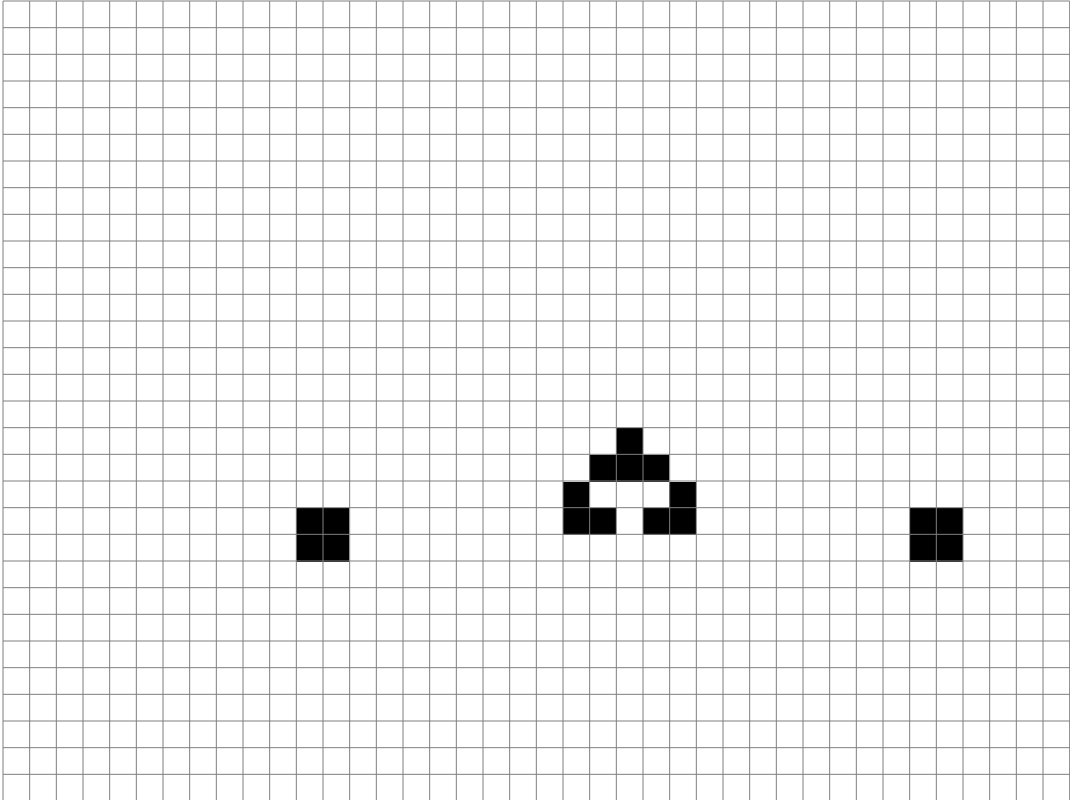
Never one to resist a challenge, particularly one that is both amusing and easy-to-fulfill, I did just that. Furthermore, I realized that a PostScript version of Life was the perfect excuse to print a flipbook. I began by producing a 150-page rendition of the Bill Gosper's "glider gun" figure, which generates little spaceships that travel off at a 45-degree angle. I delivered that to Donn last week on the occasion of our having dinner with him and his wife Kathy. (Also in attendance was the now-retired chairman of Donn's PhD committee, who was justly amused.)

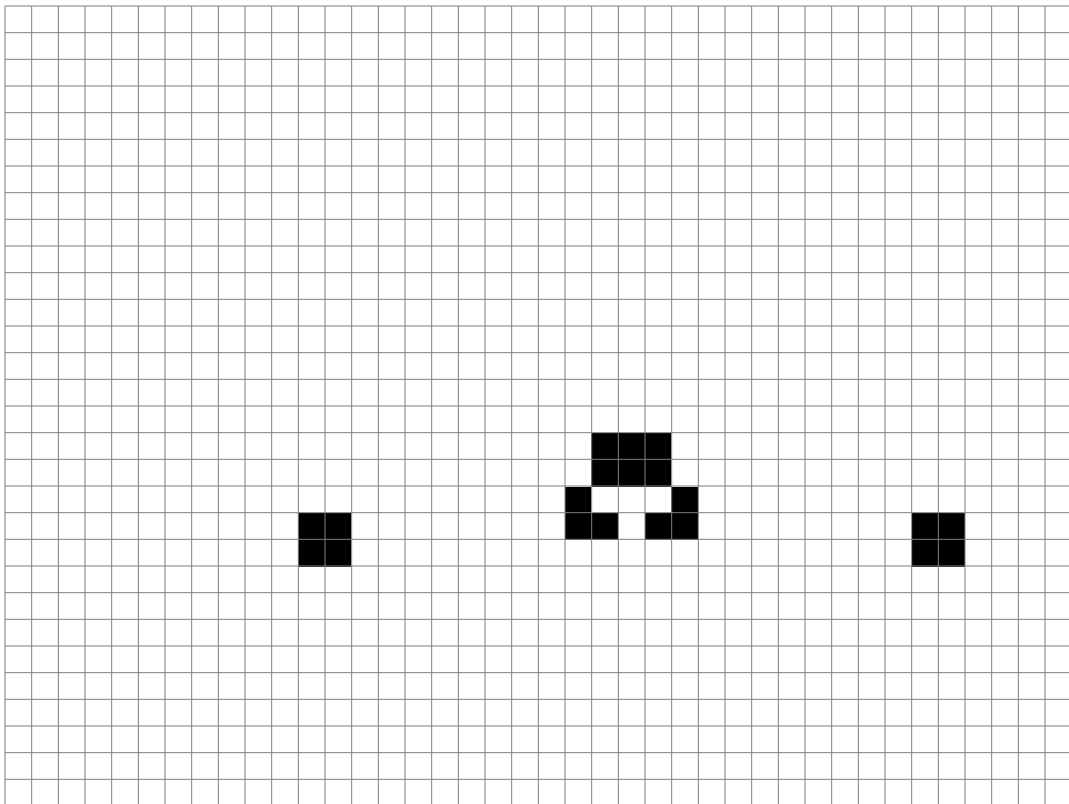
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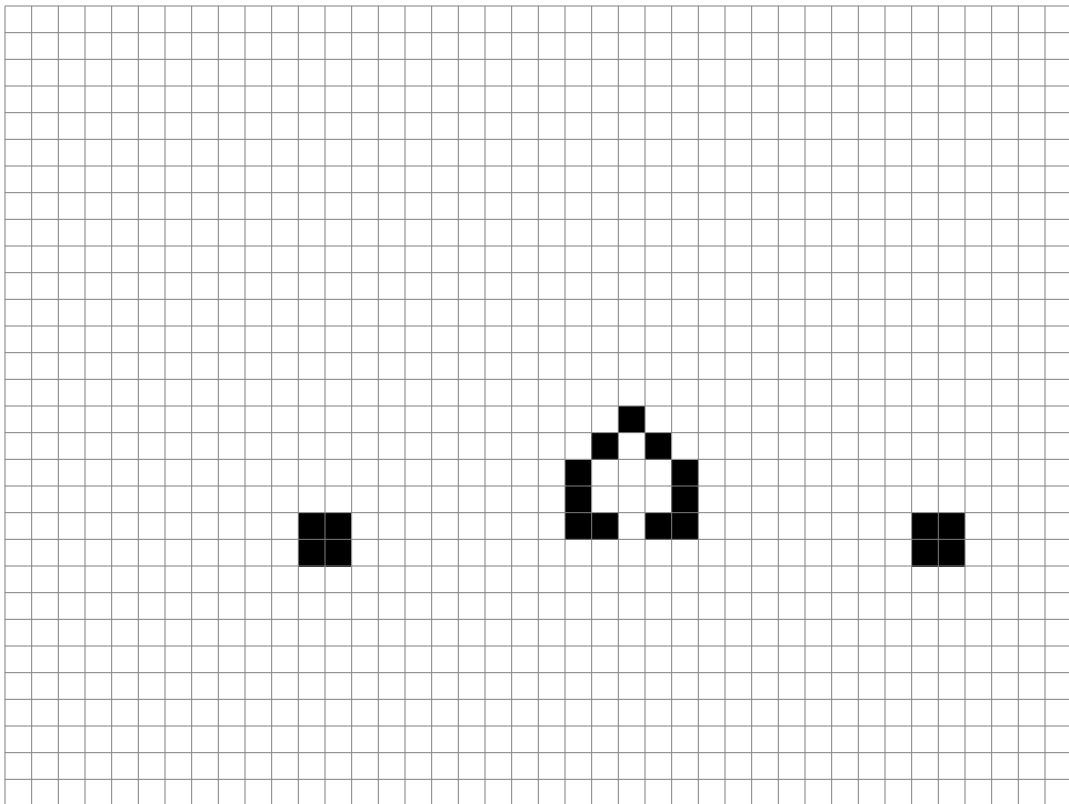


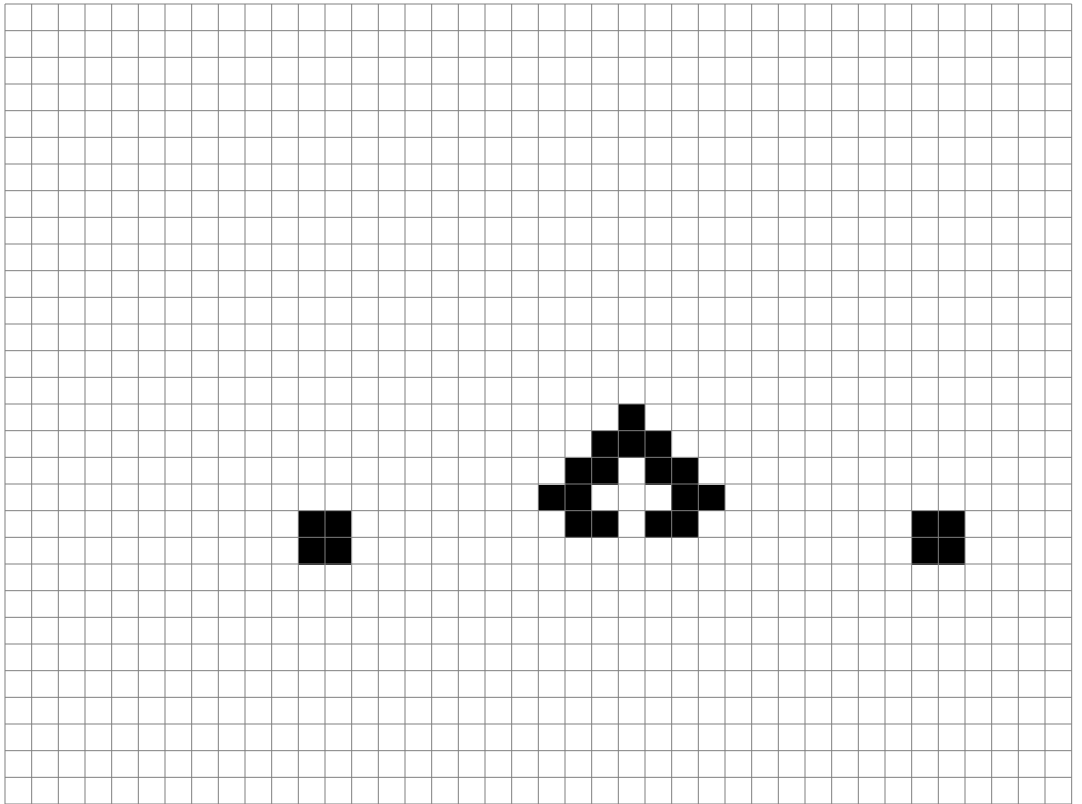




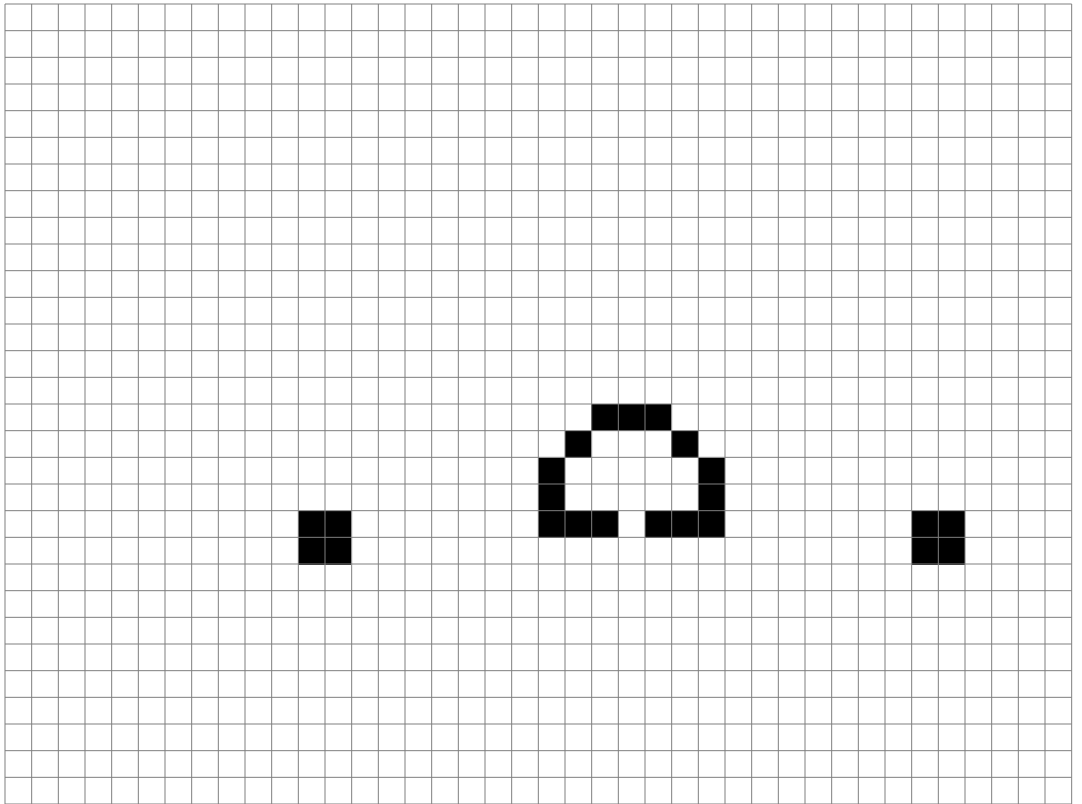


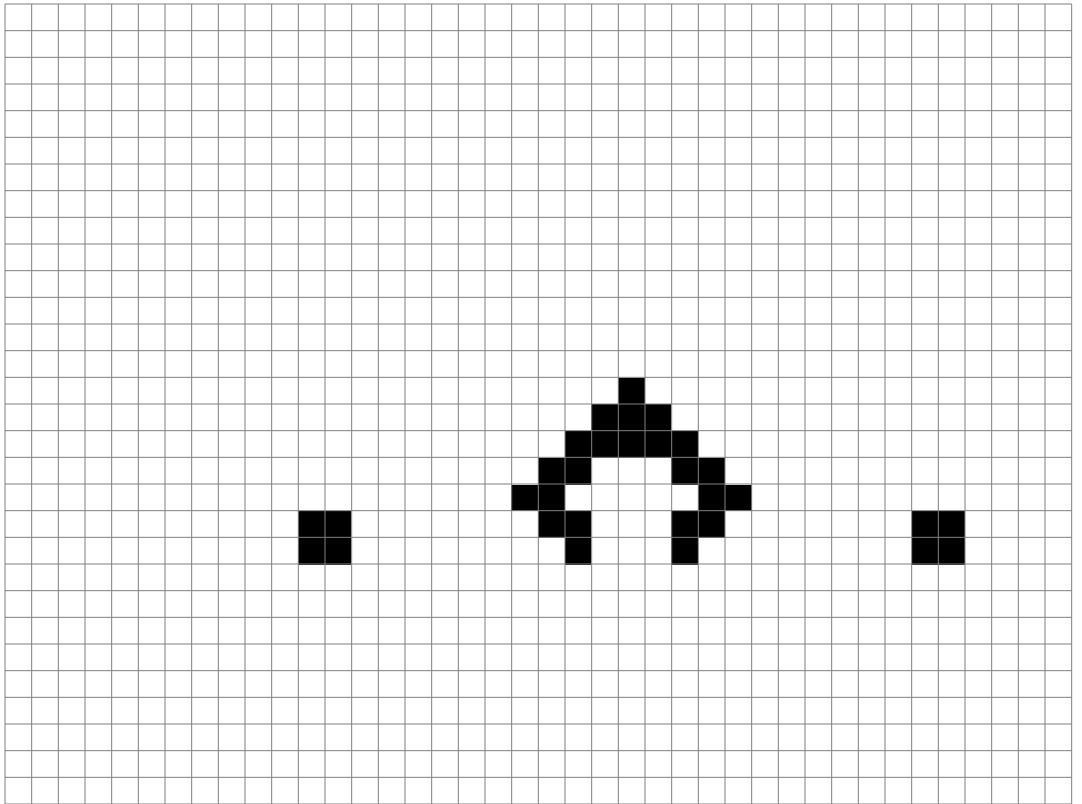


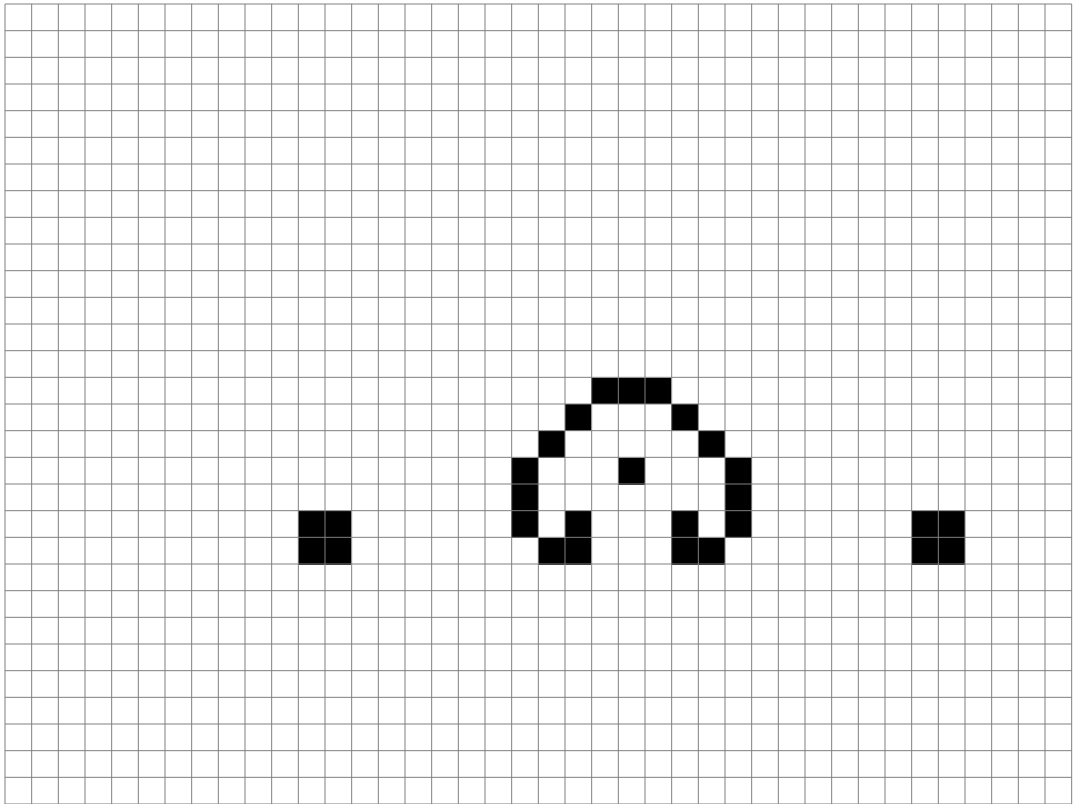


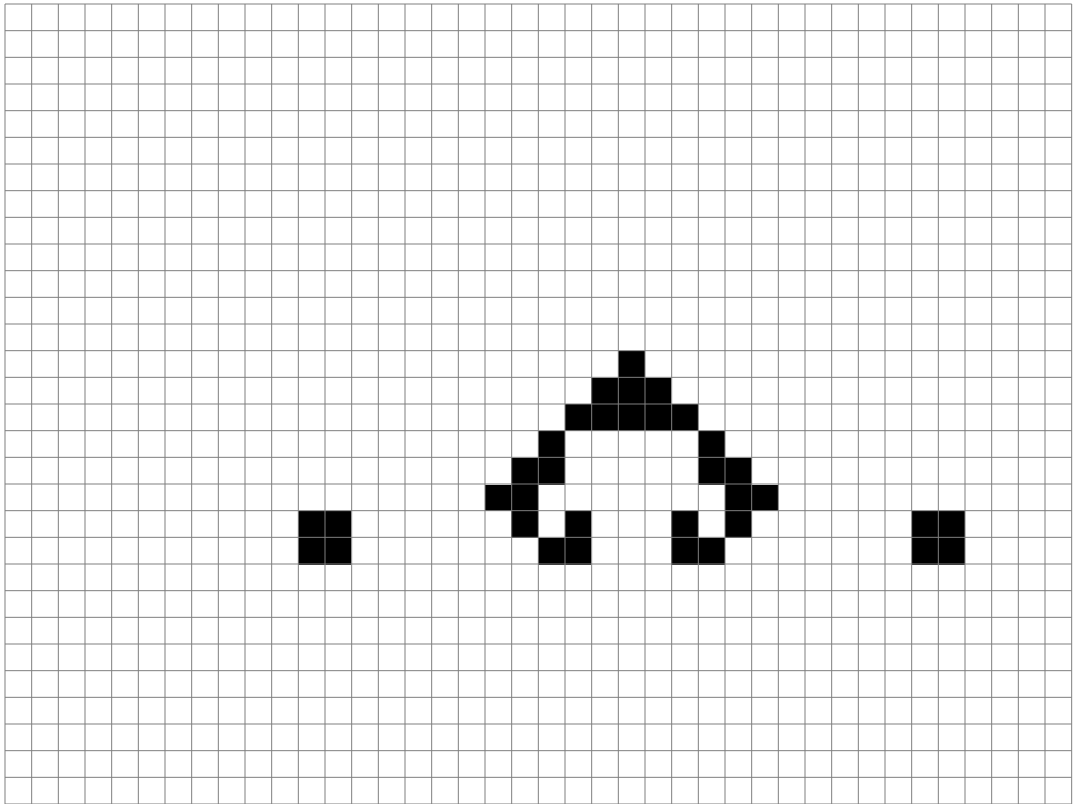


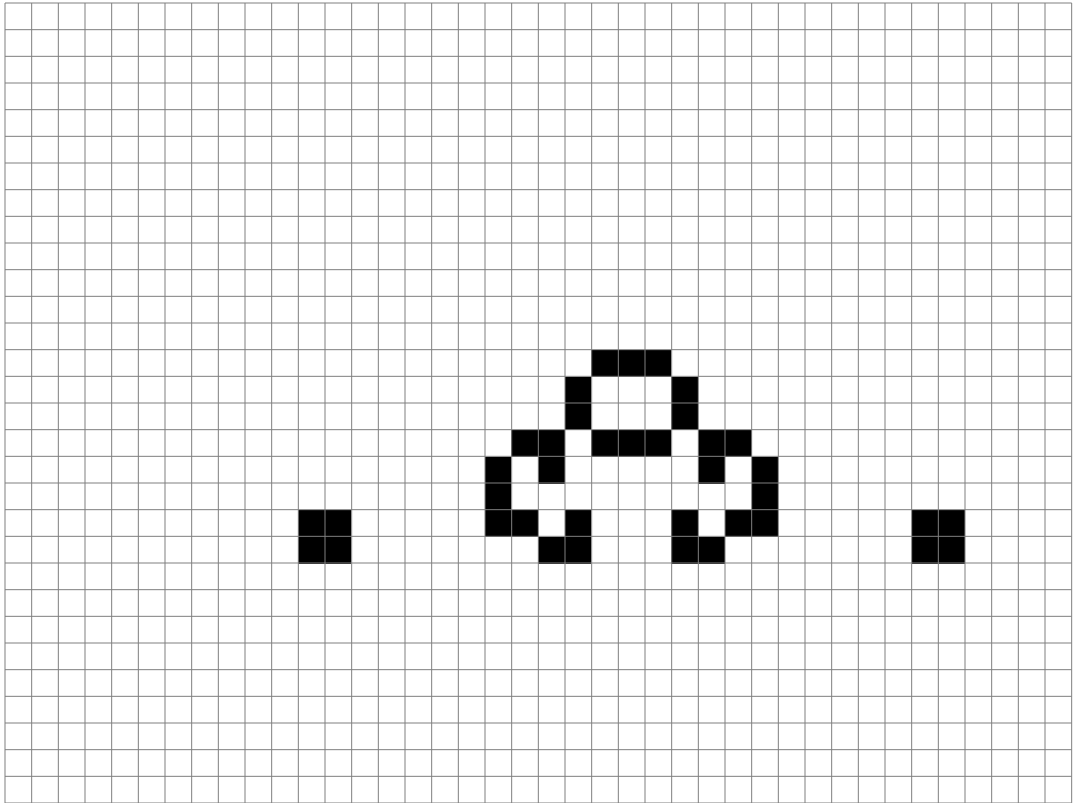


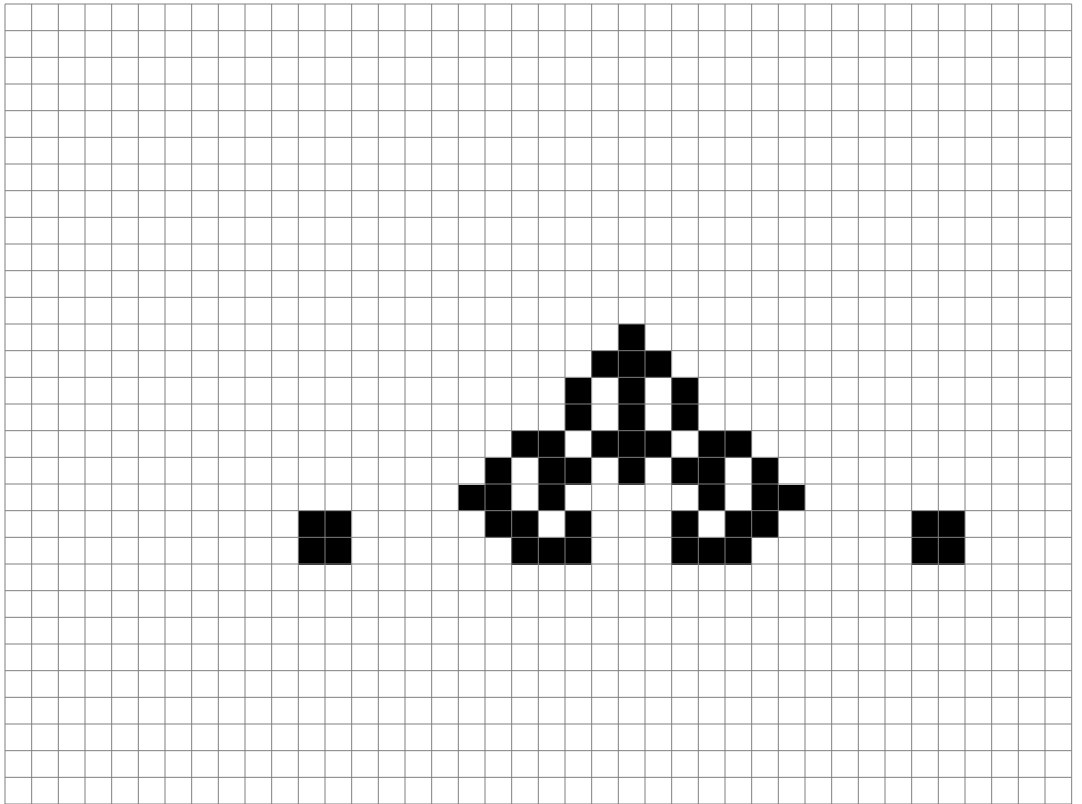


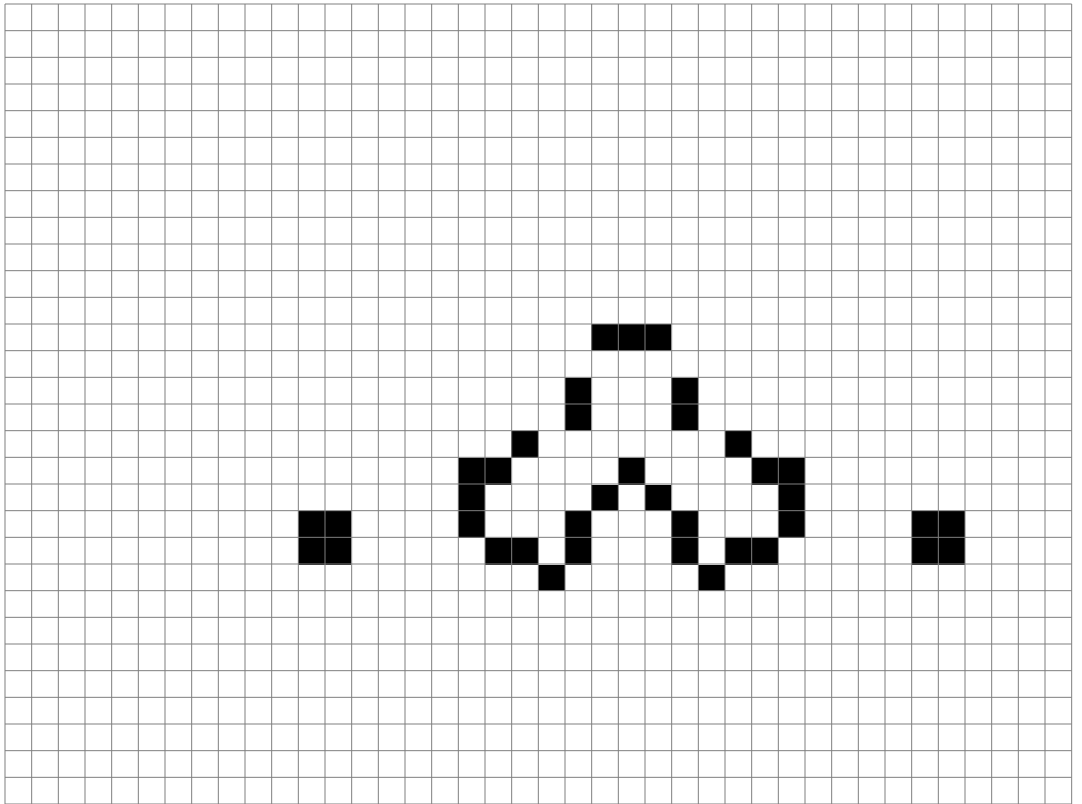


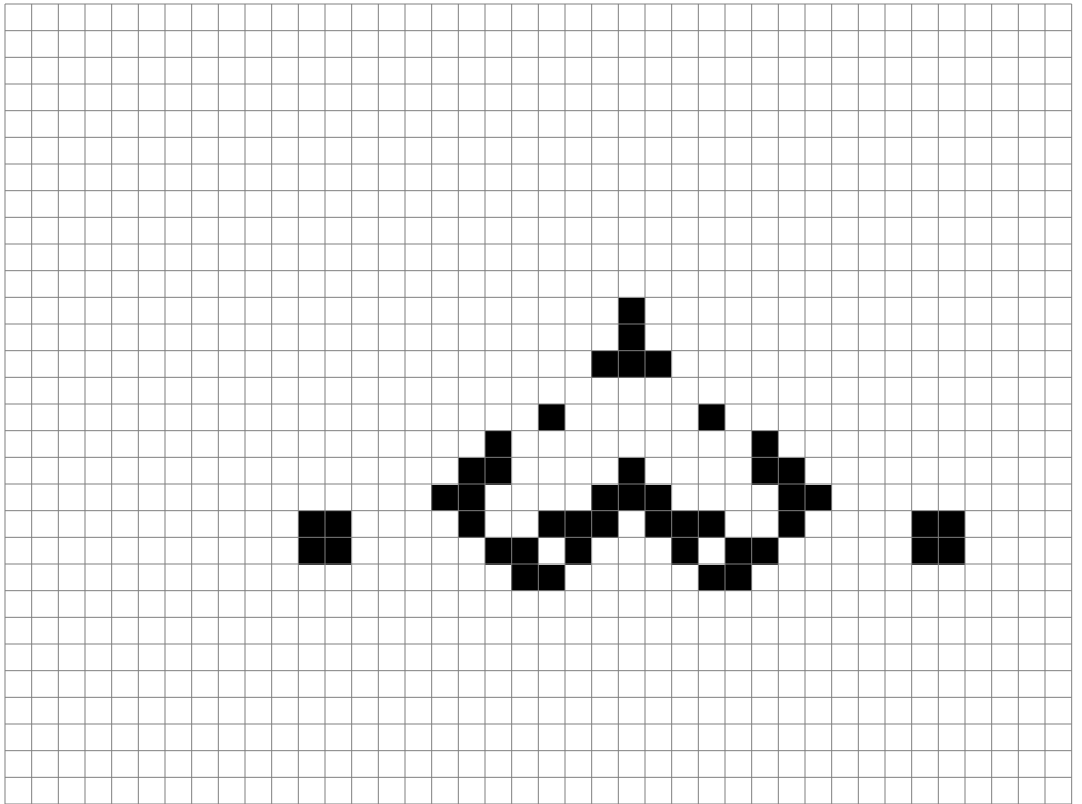




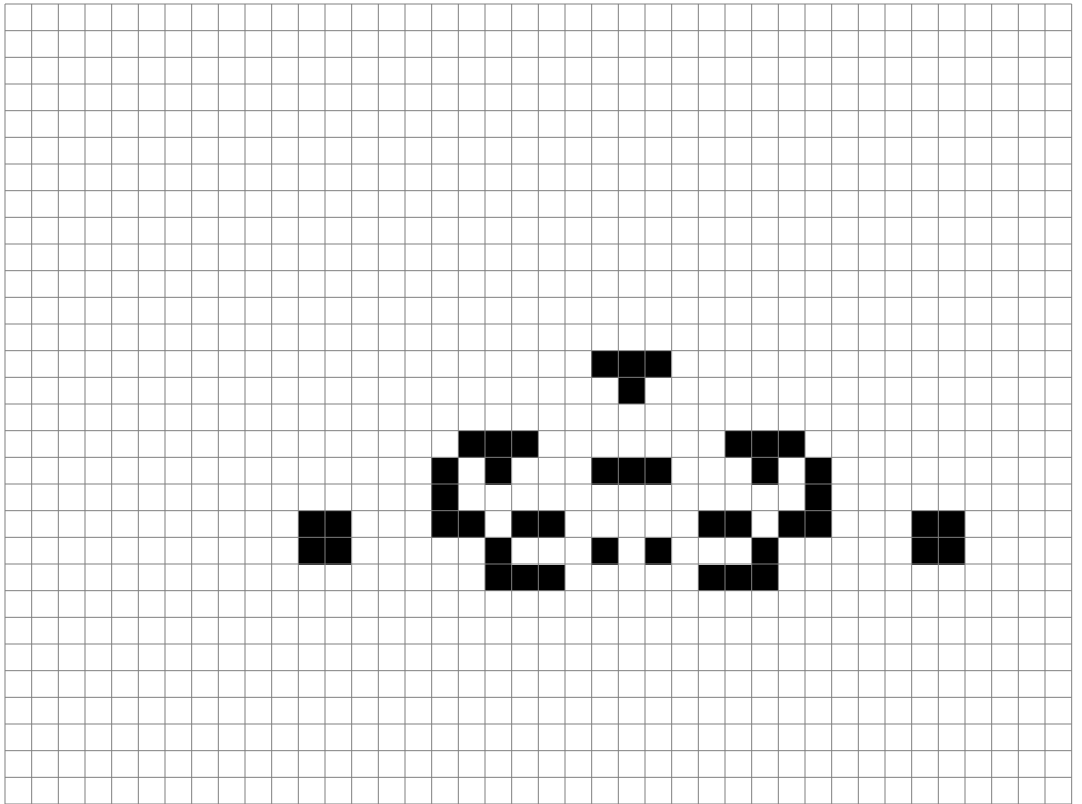


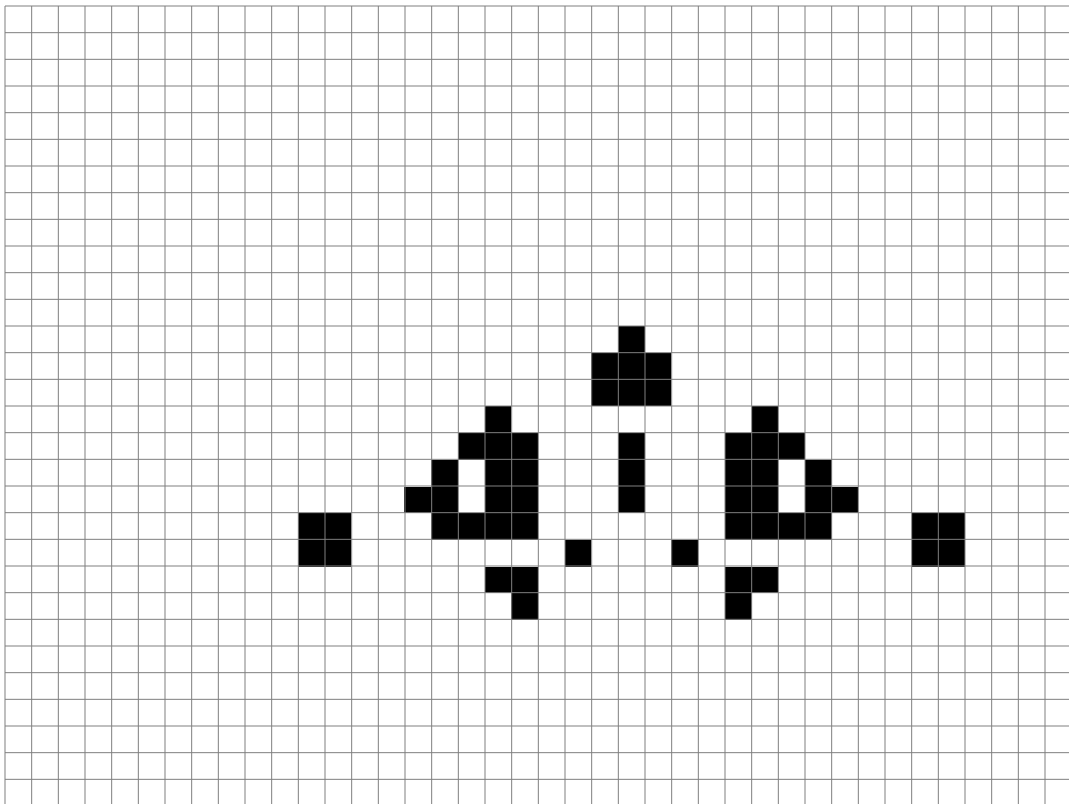


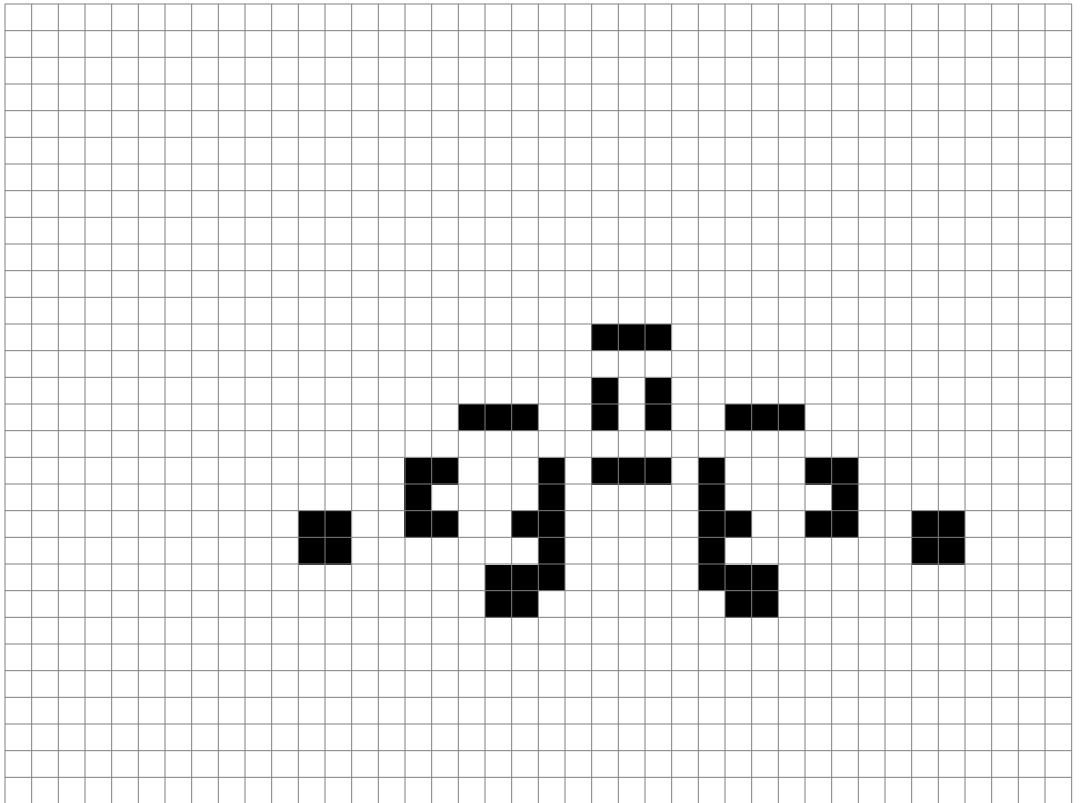


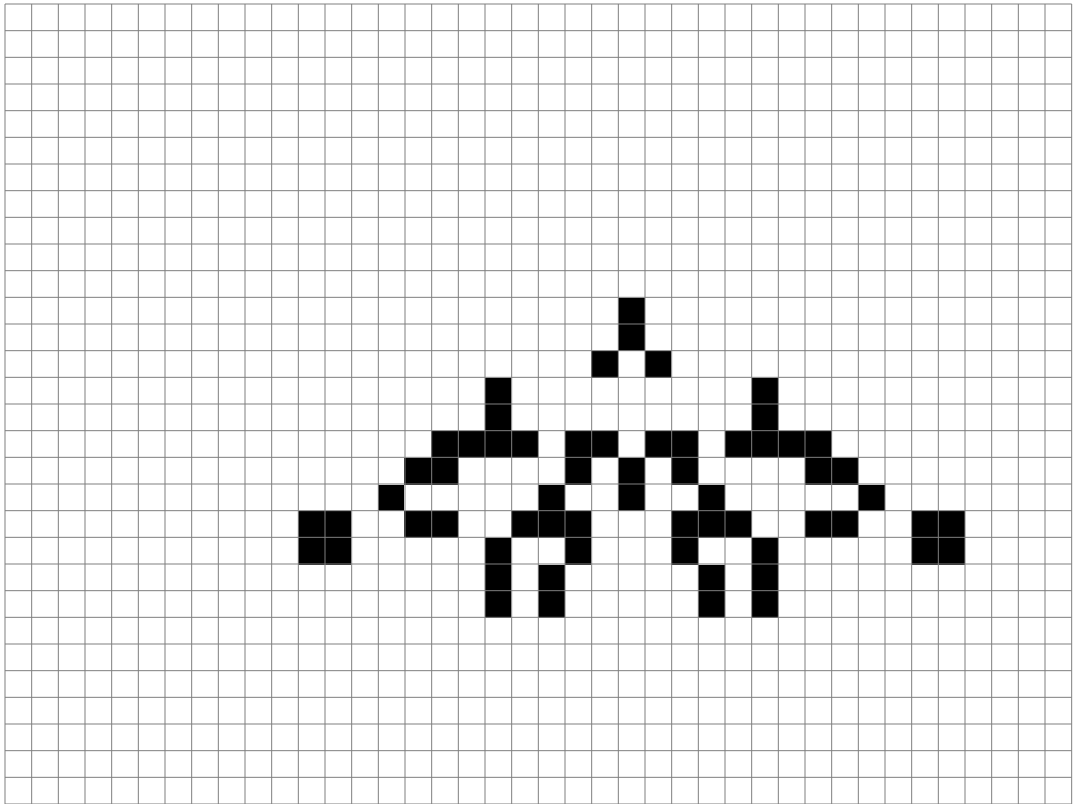


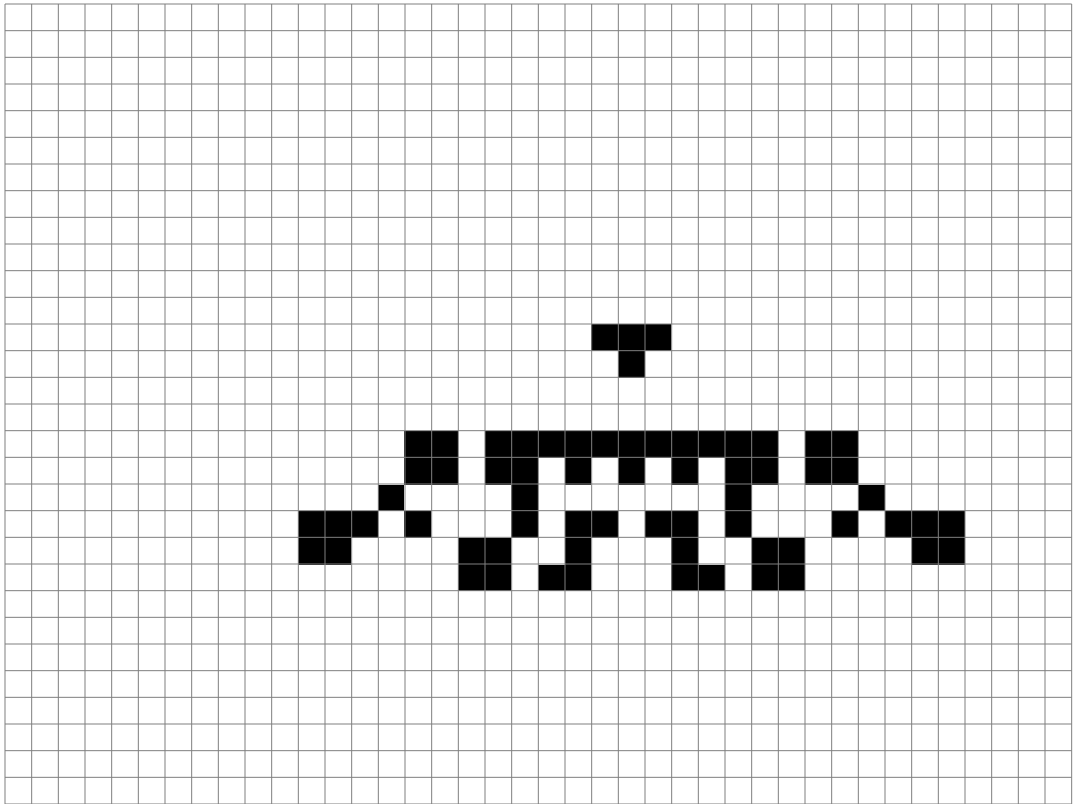


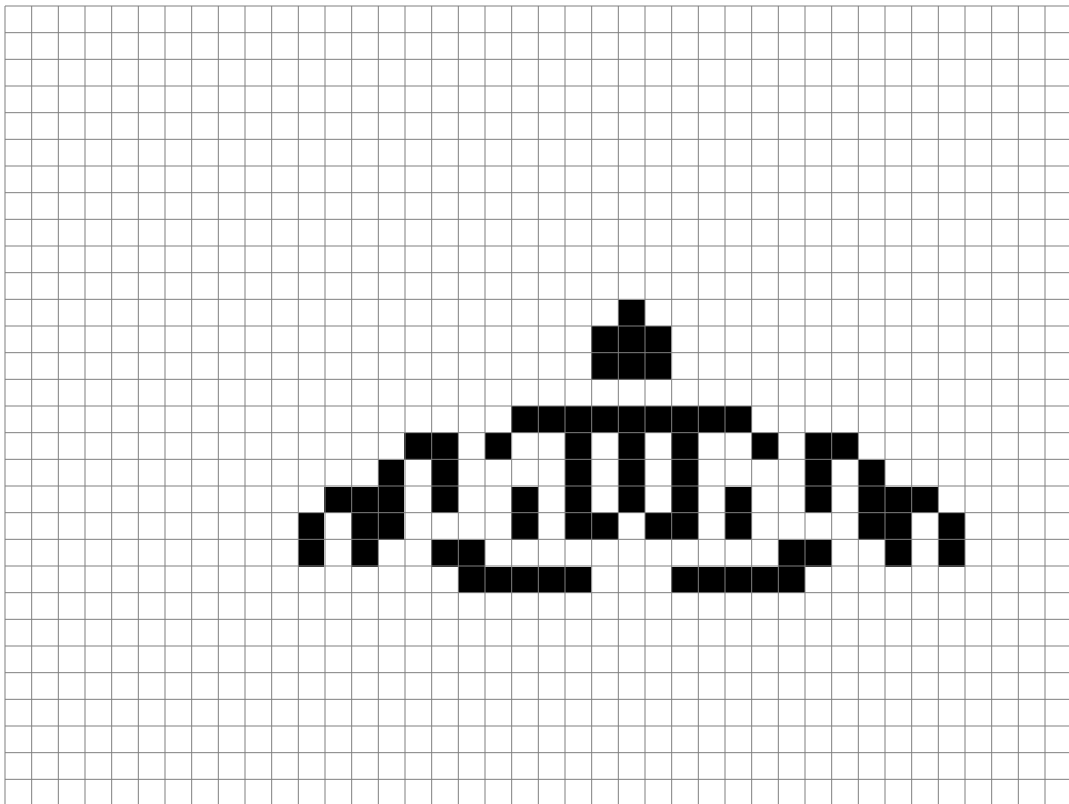


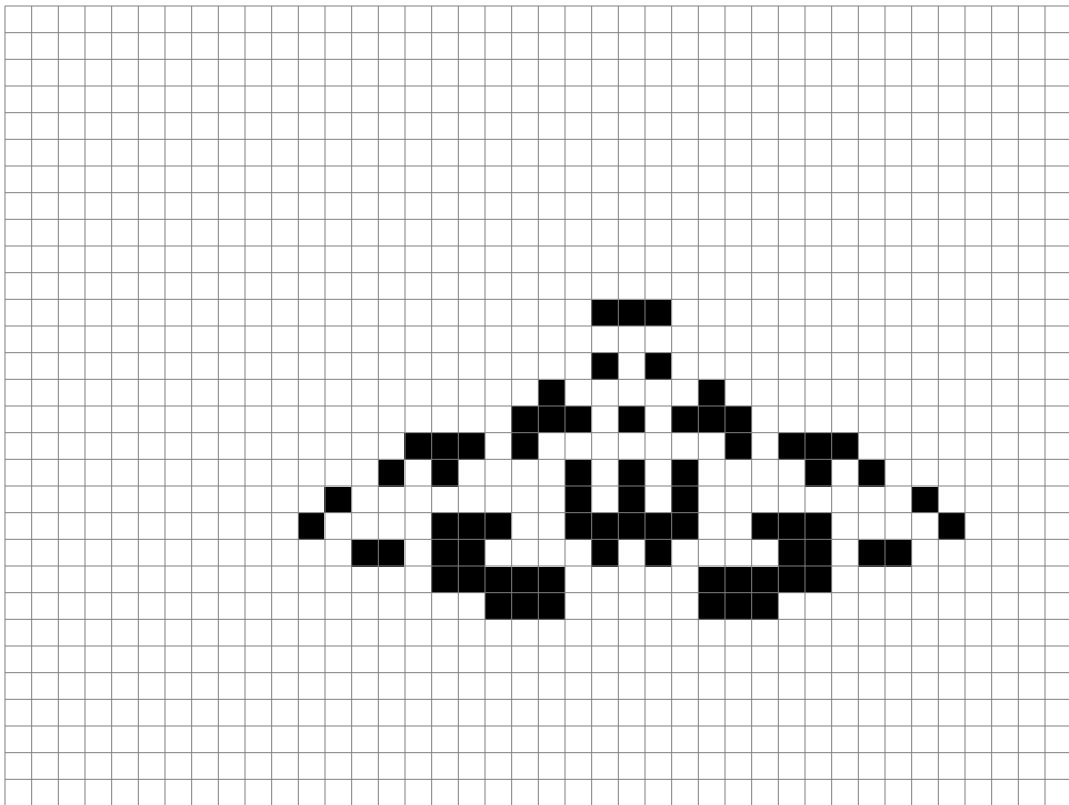


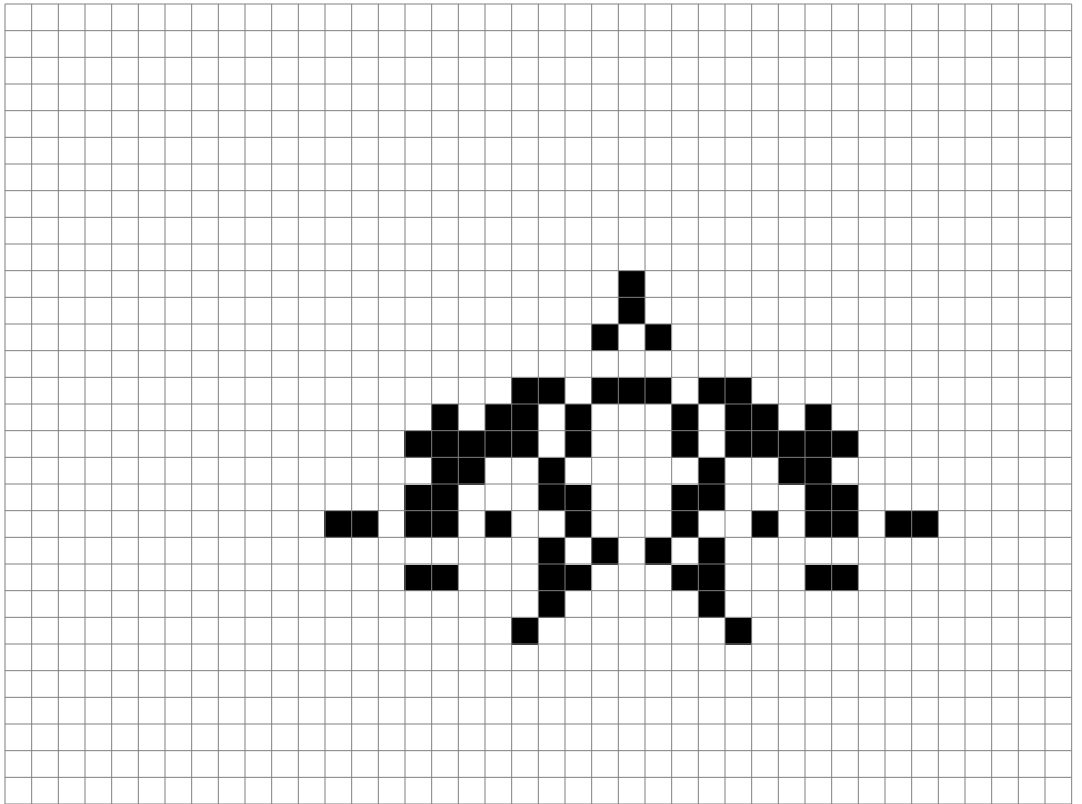




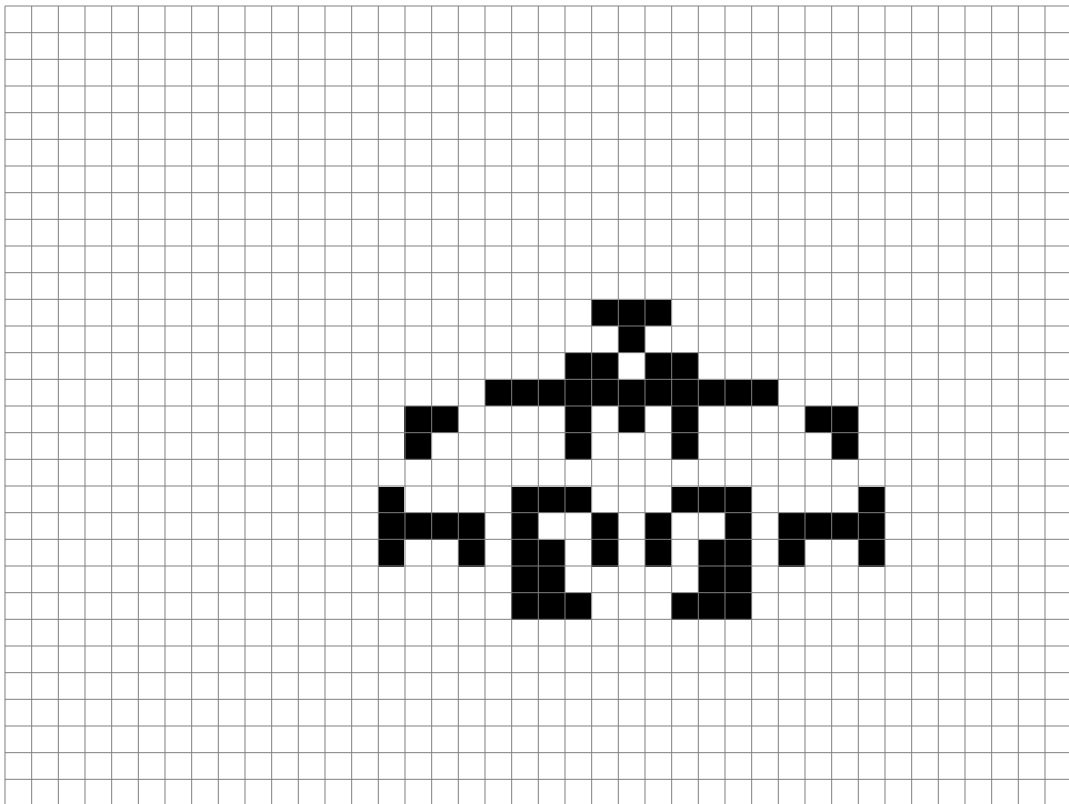


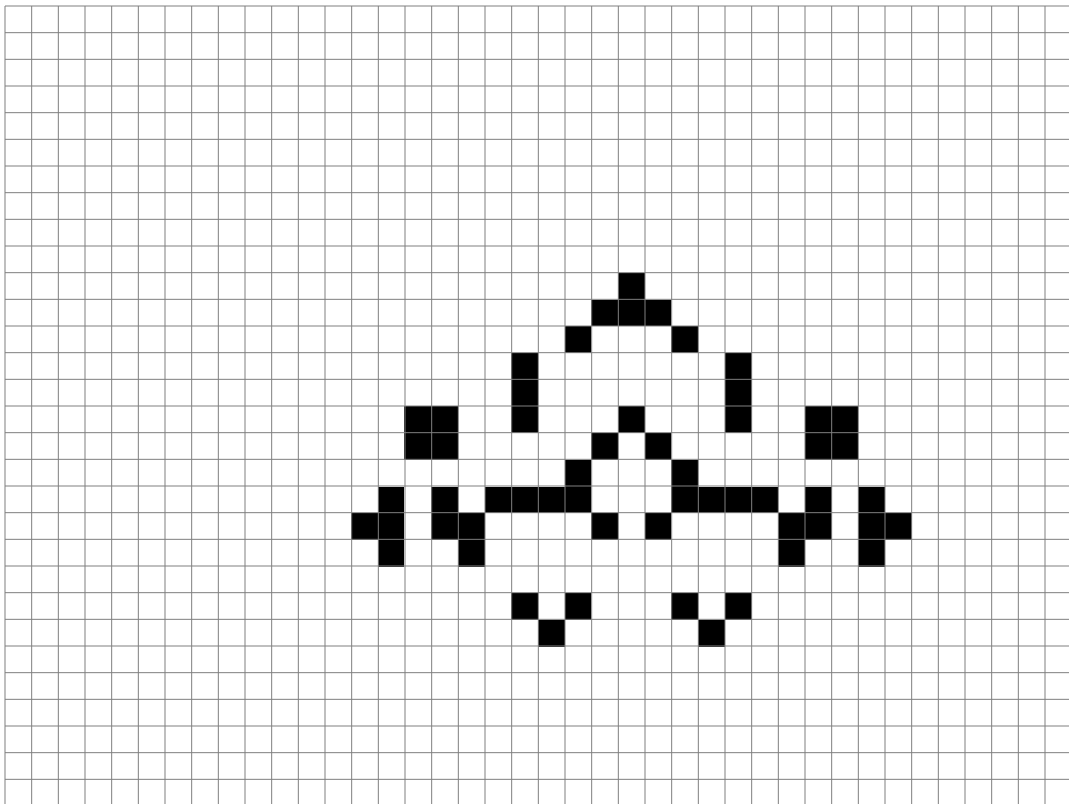


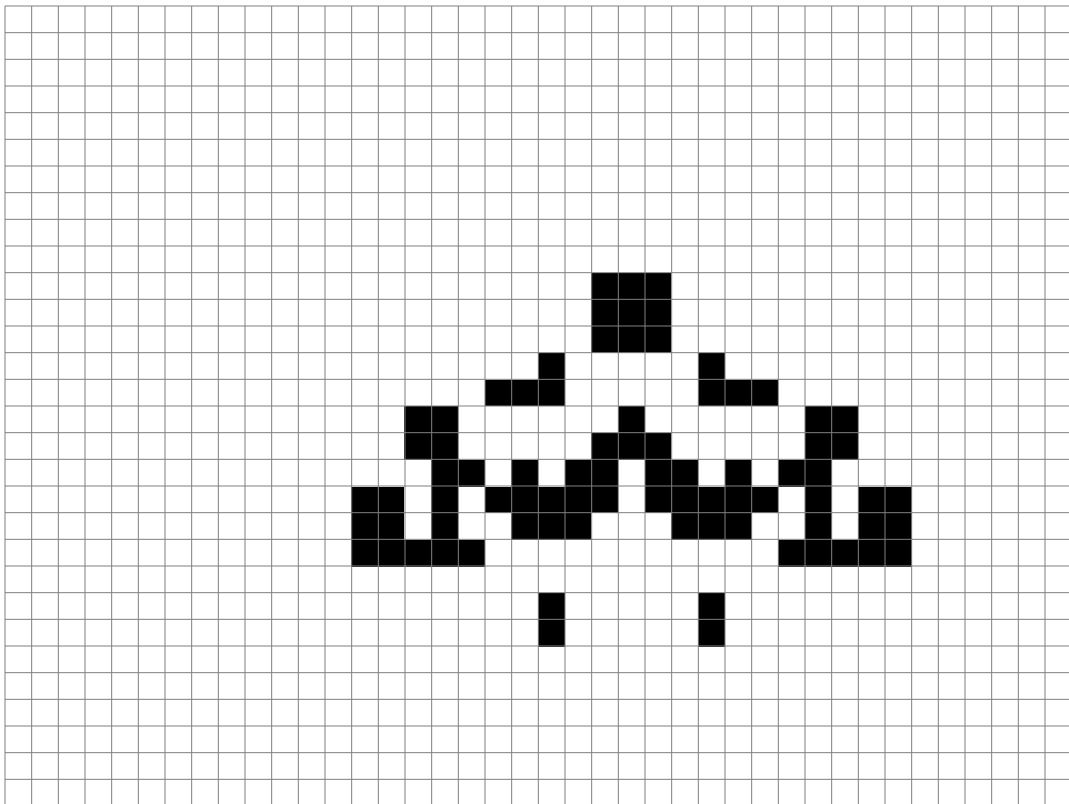


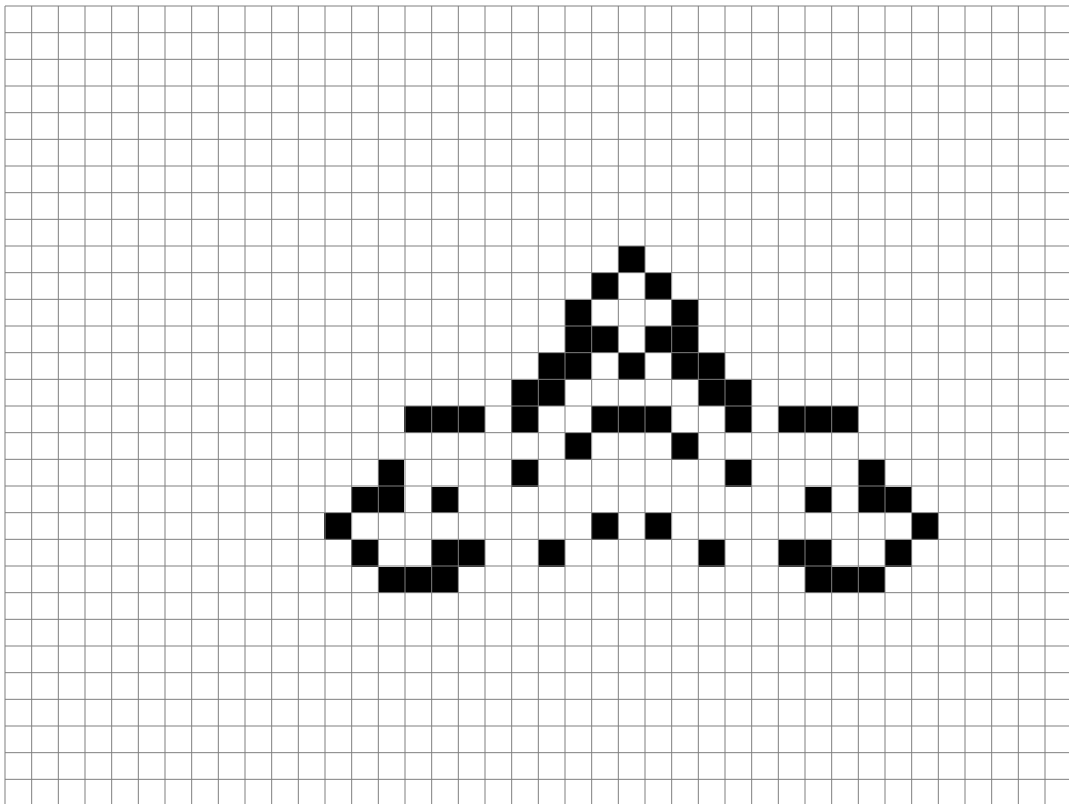


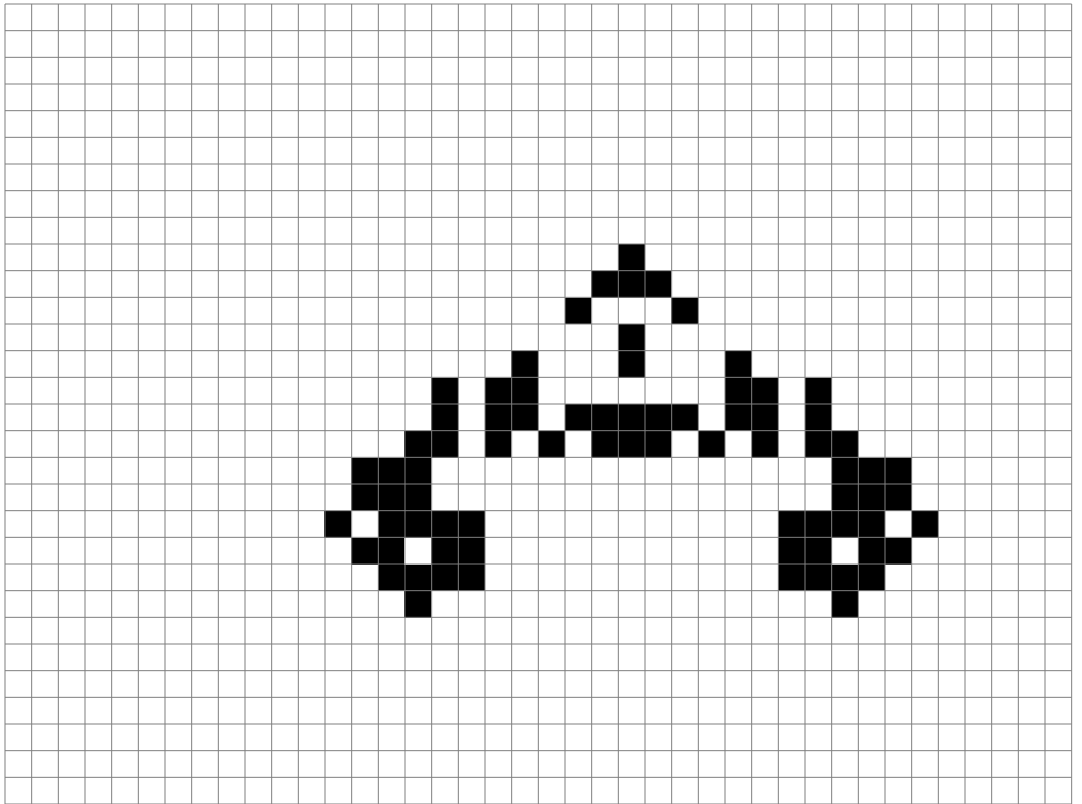


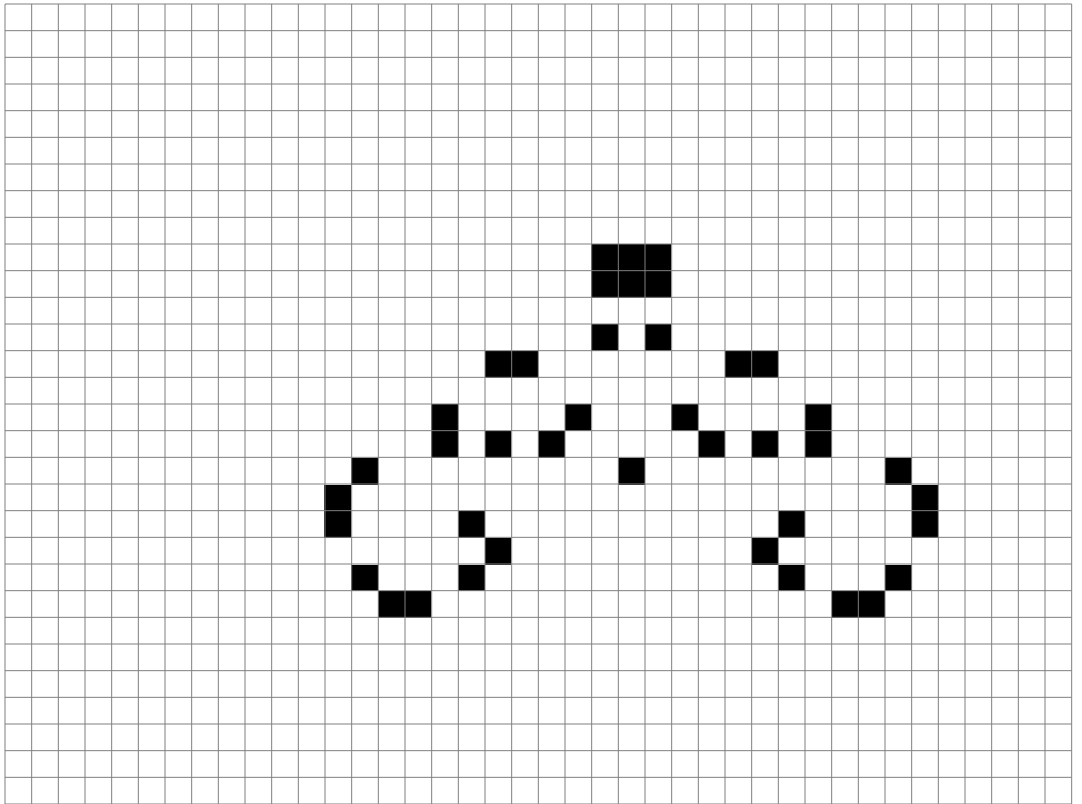


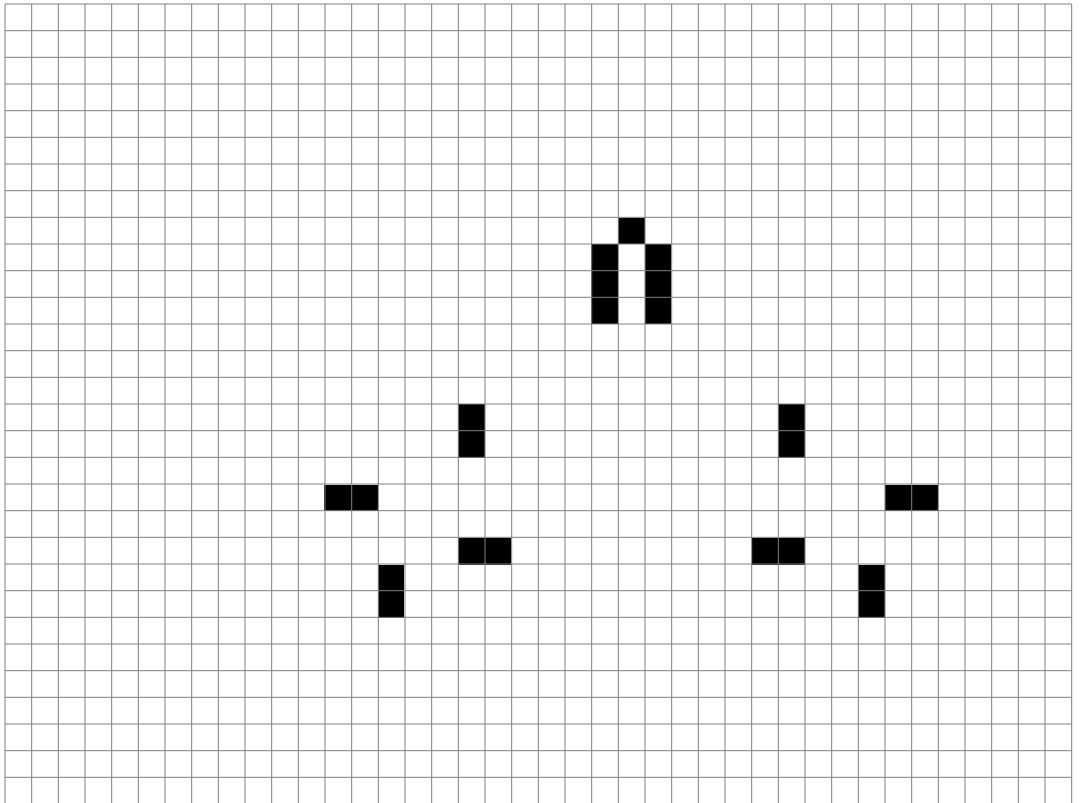


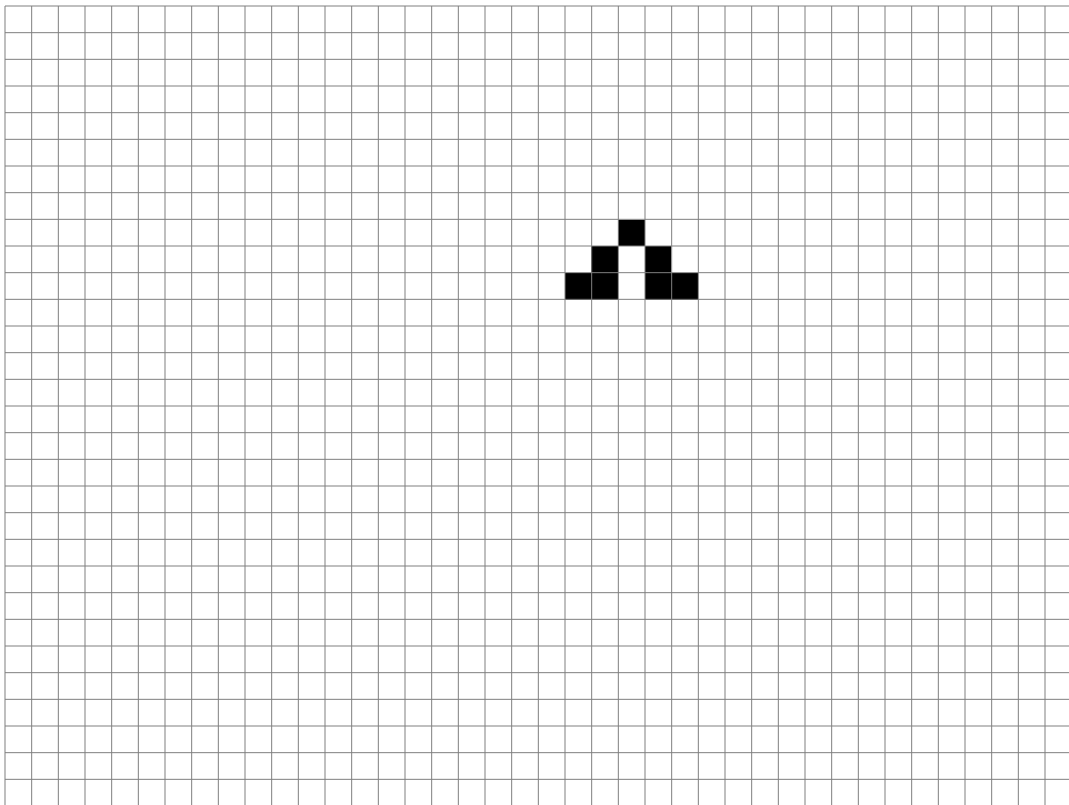




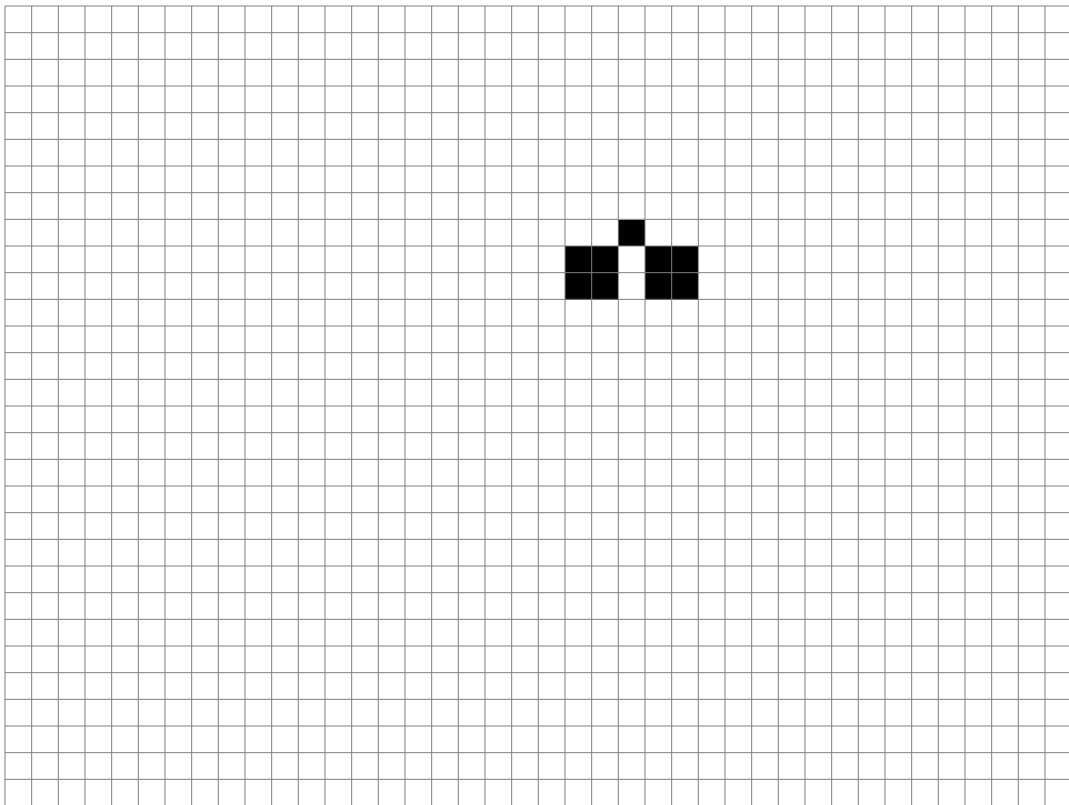


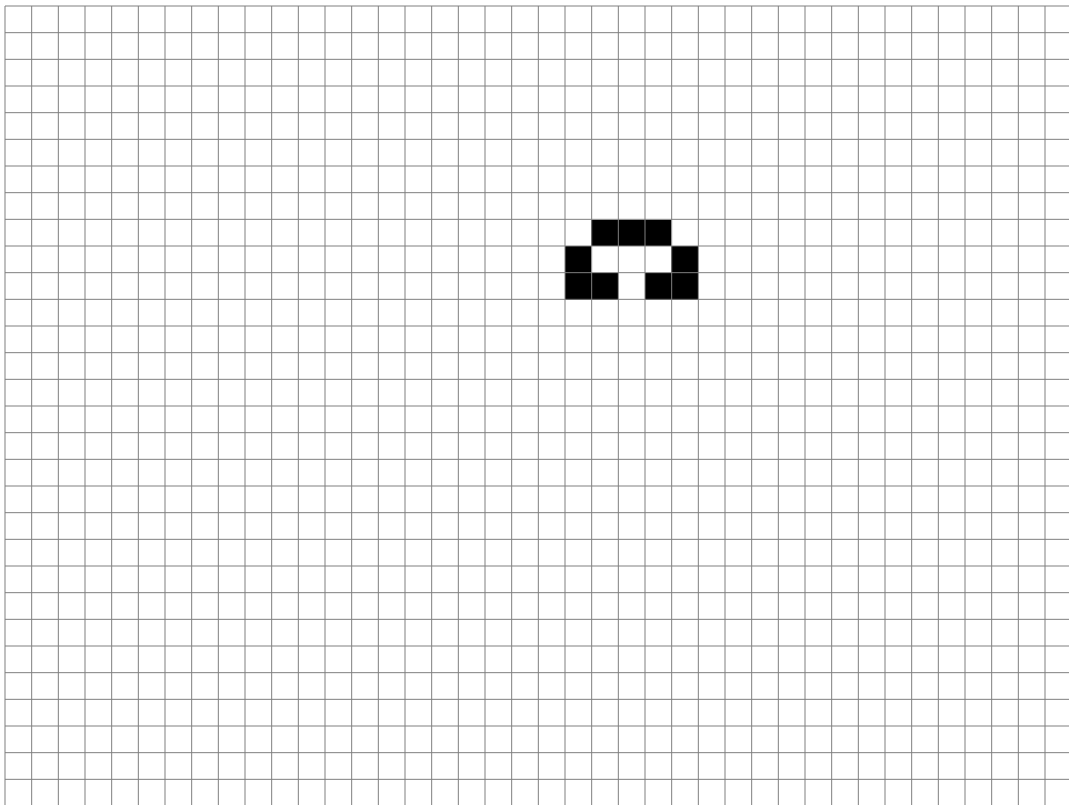


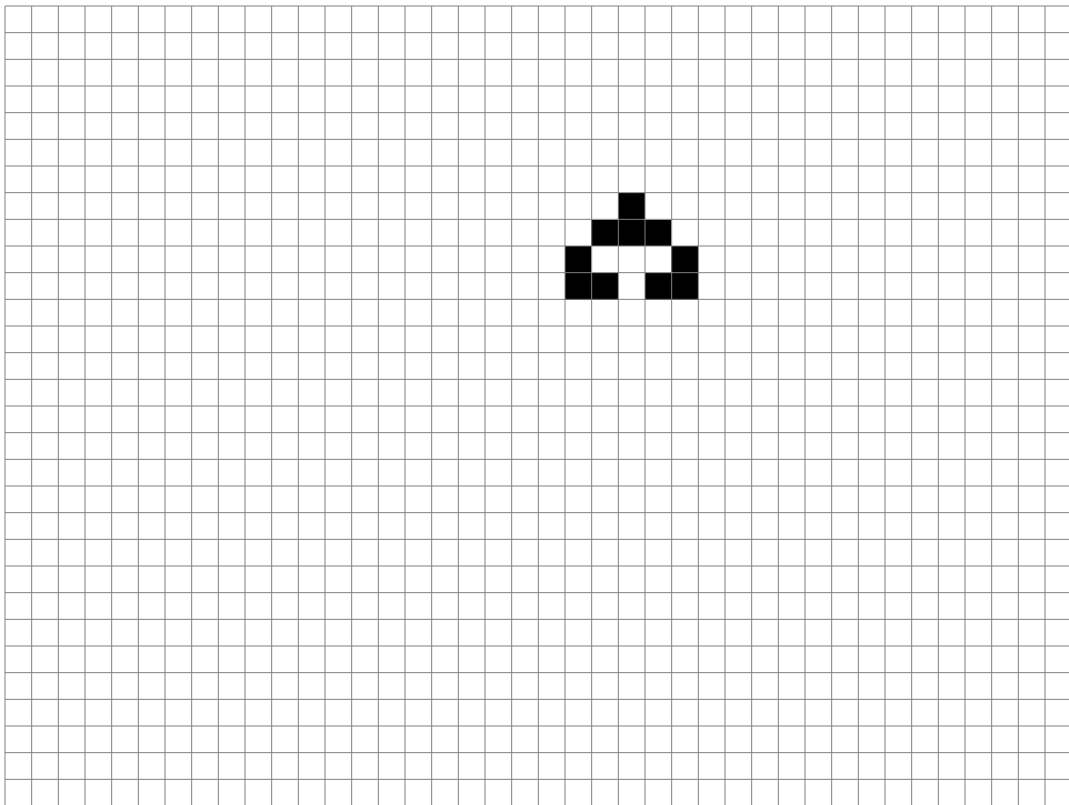


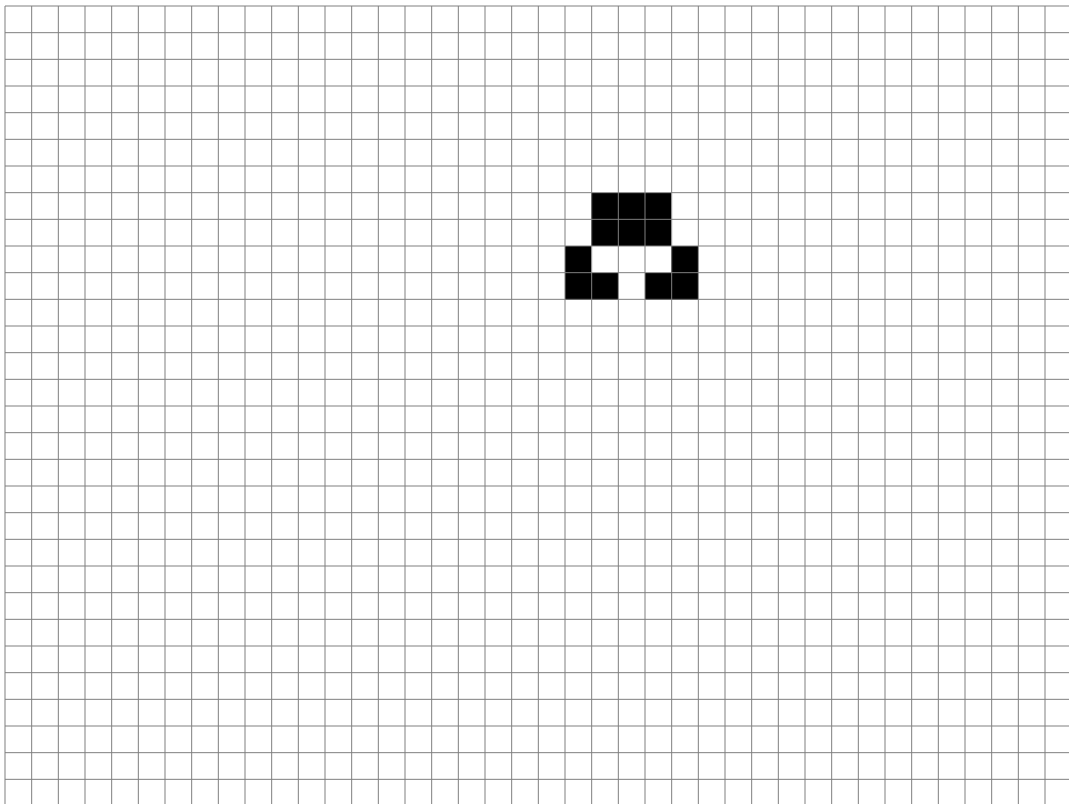


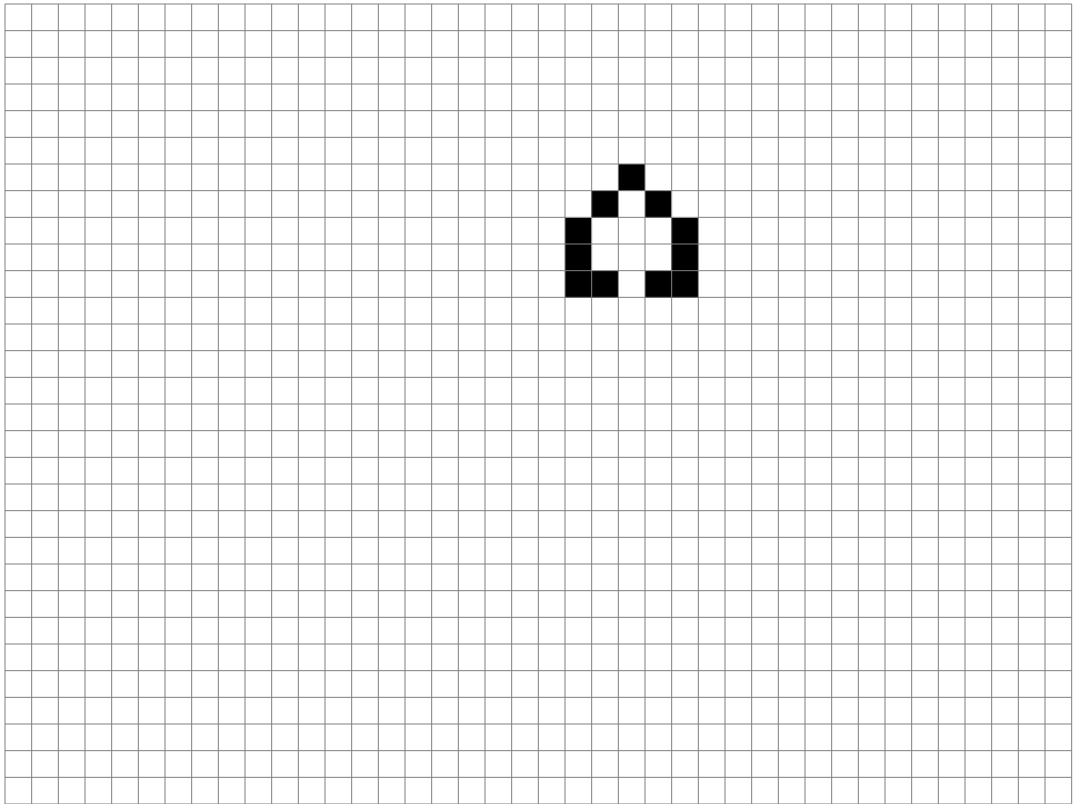


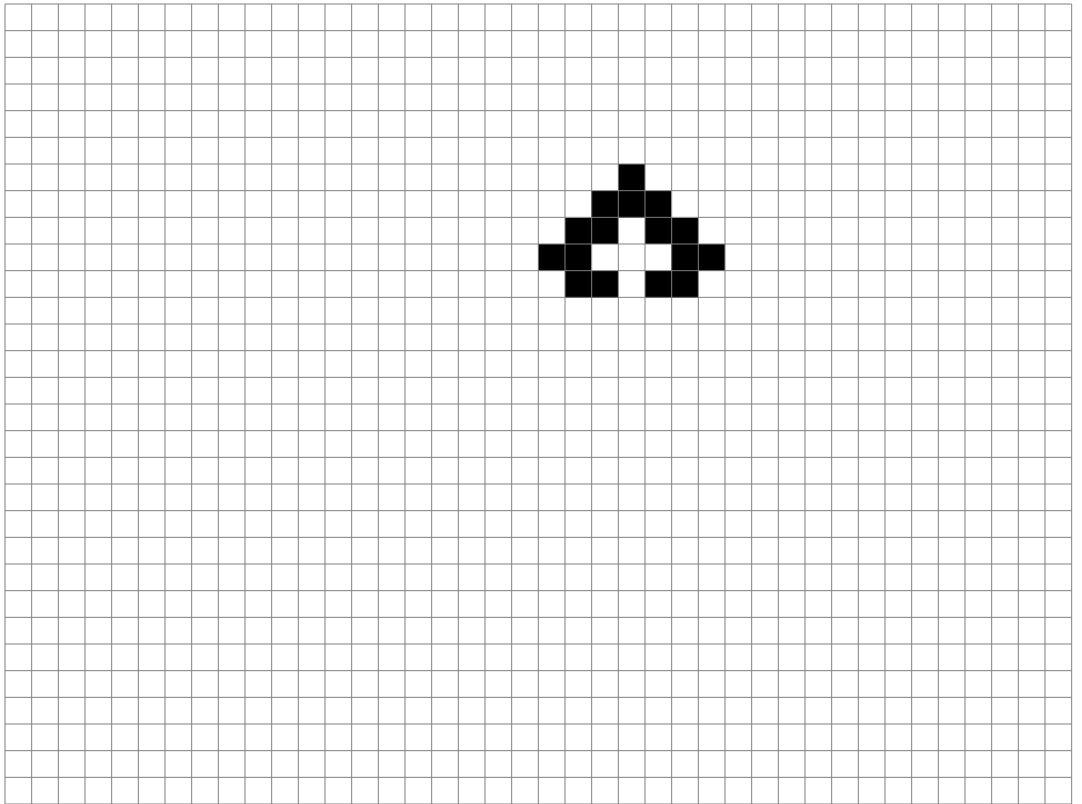


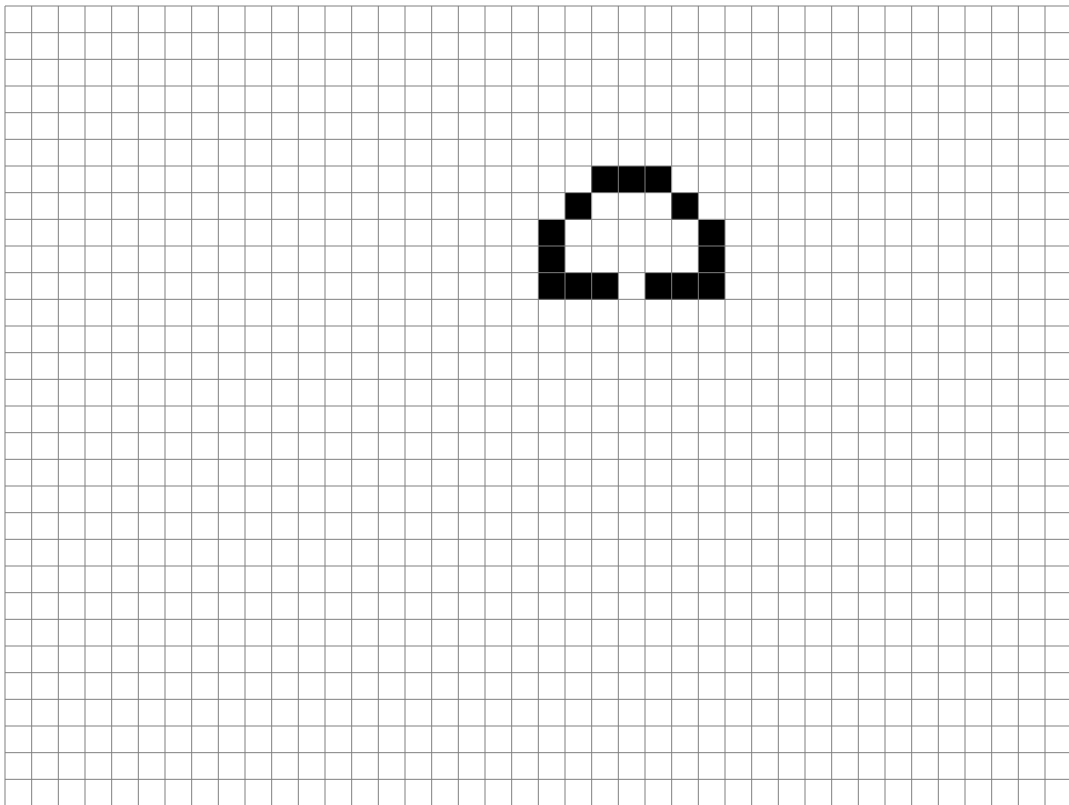


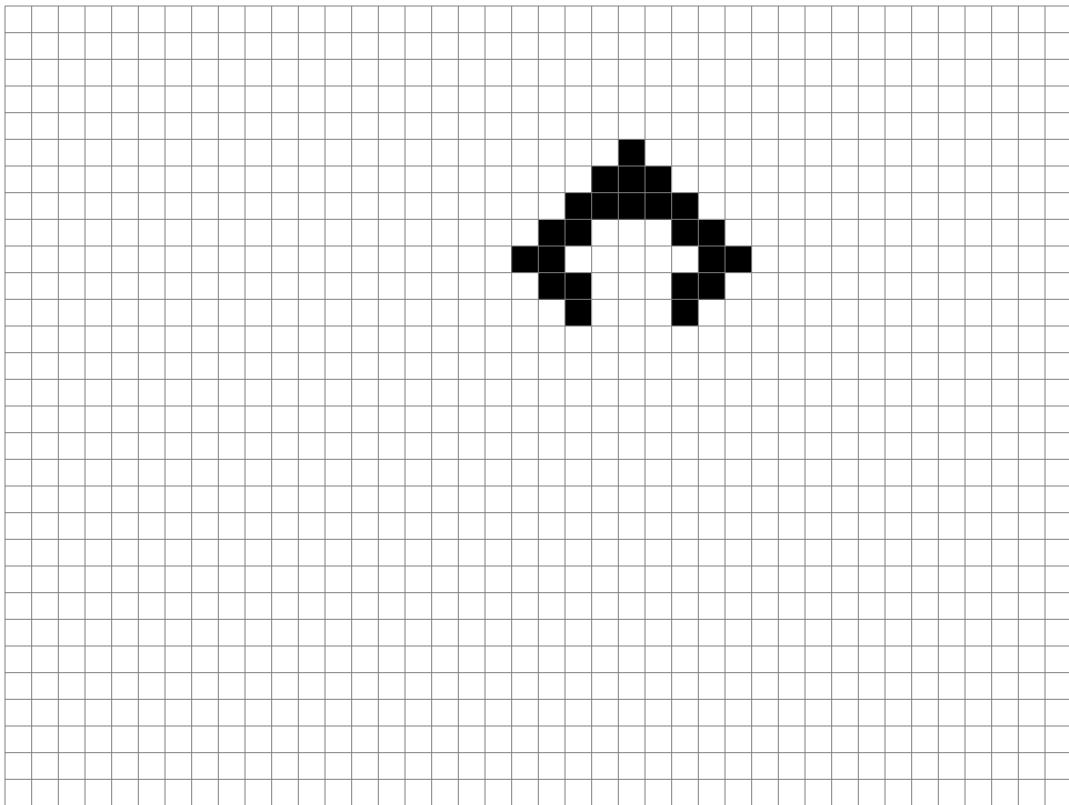




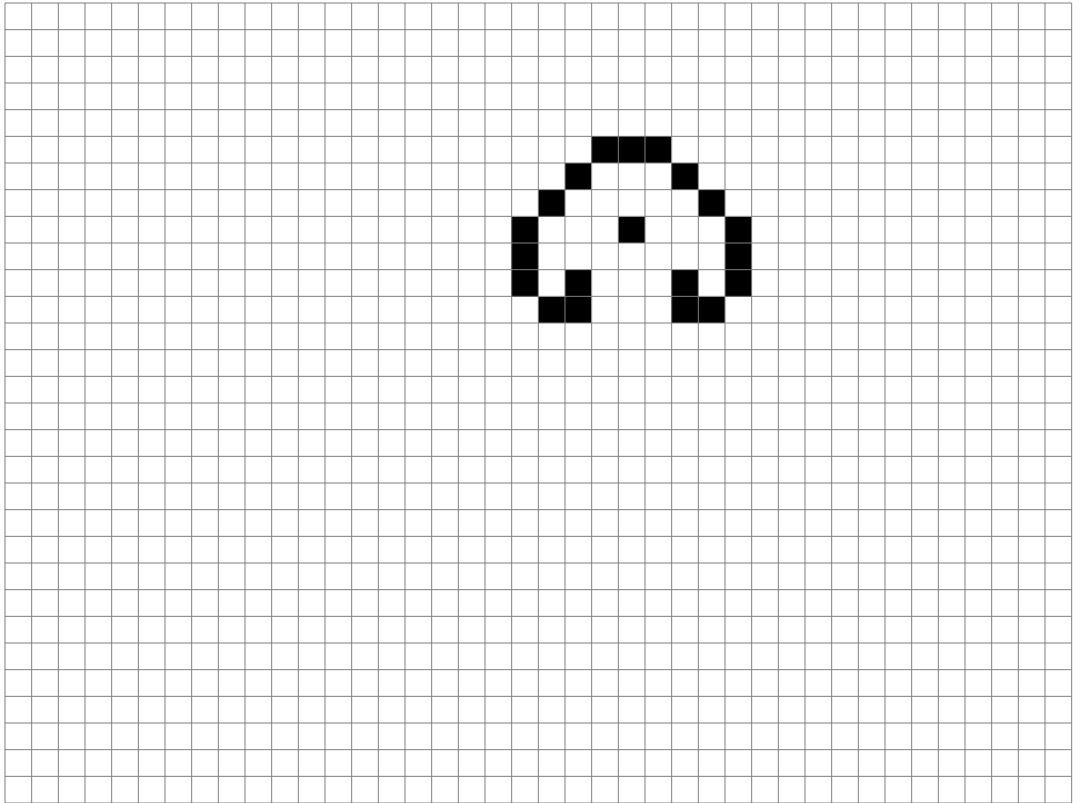


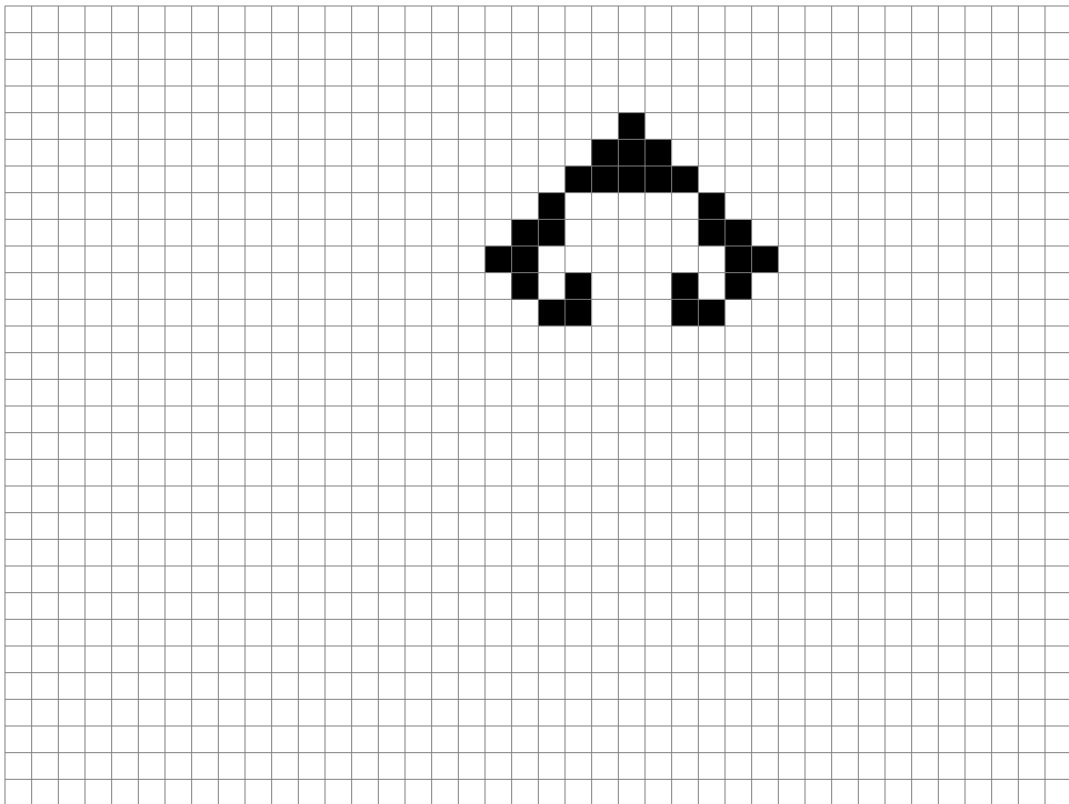


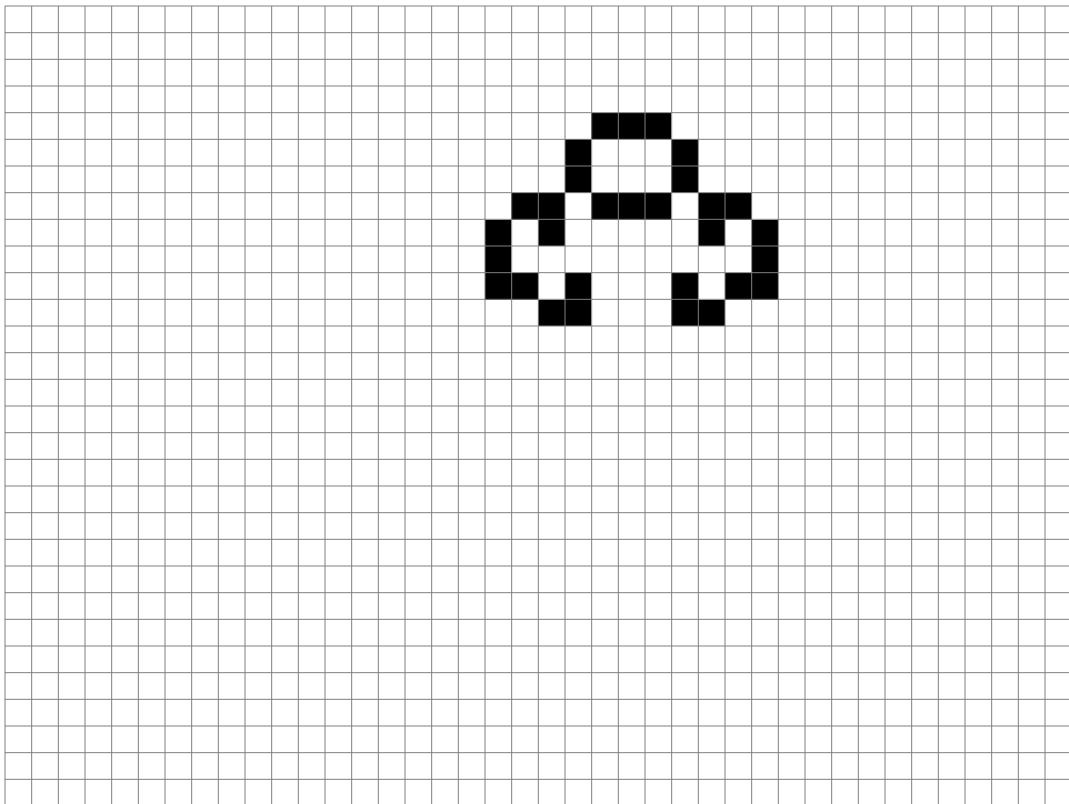


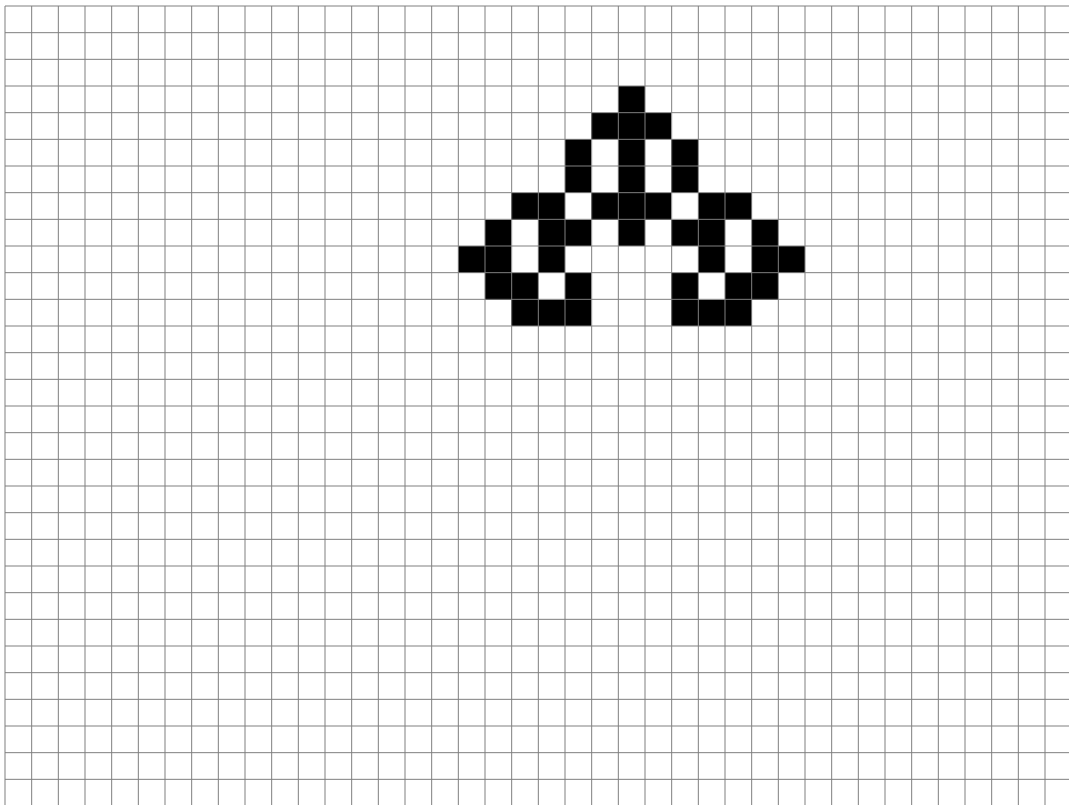


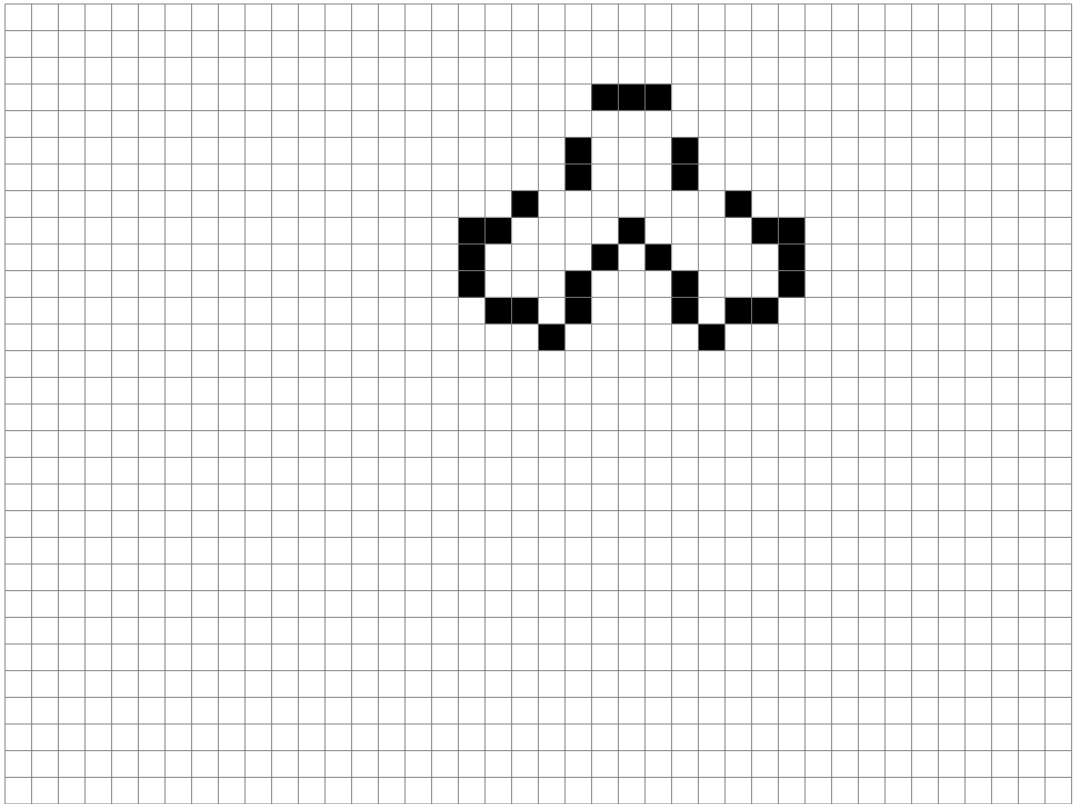


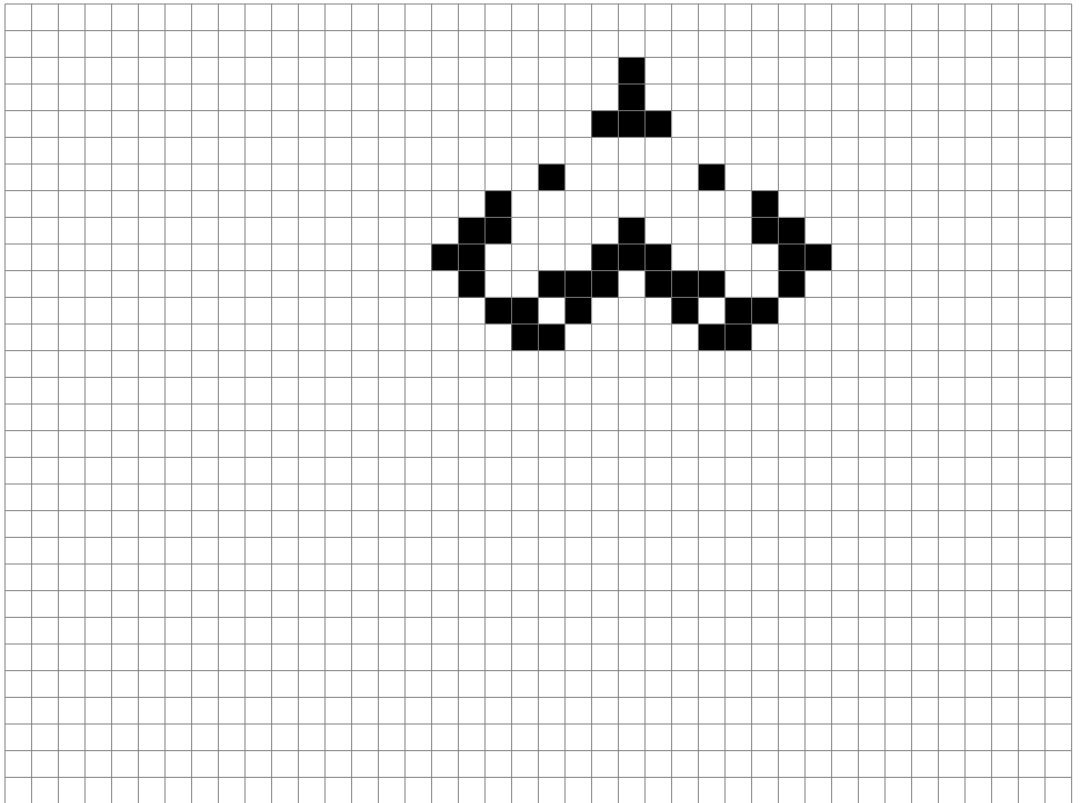


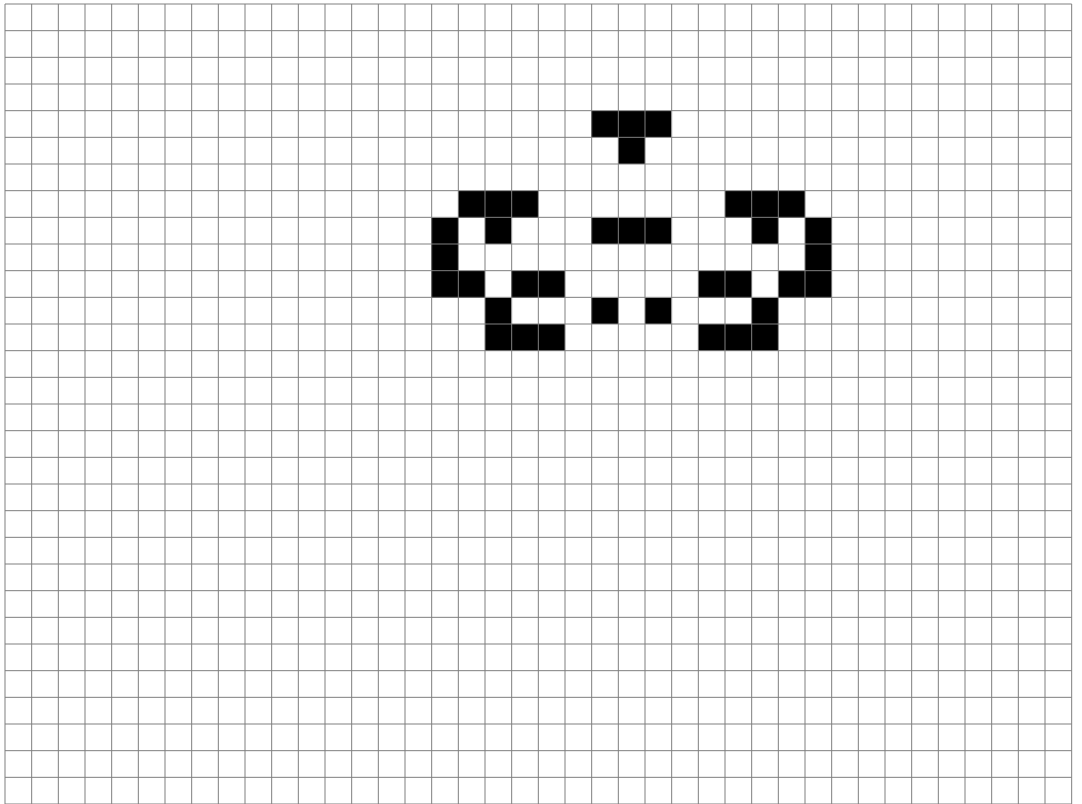


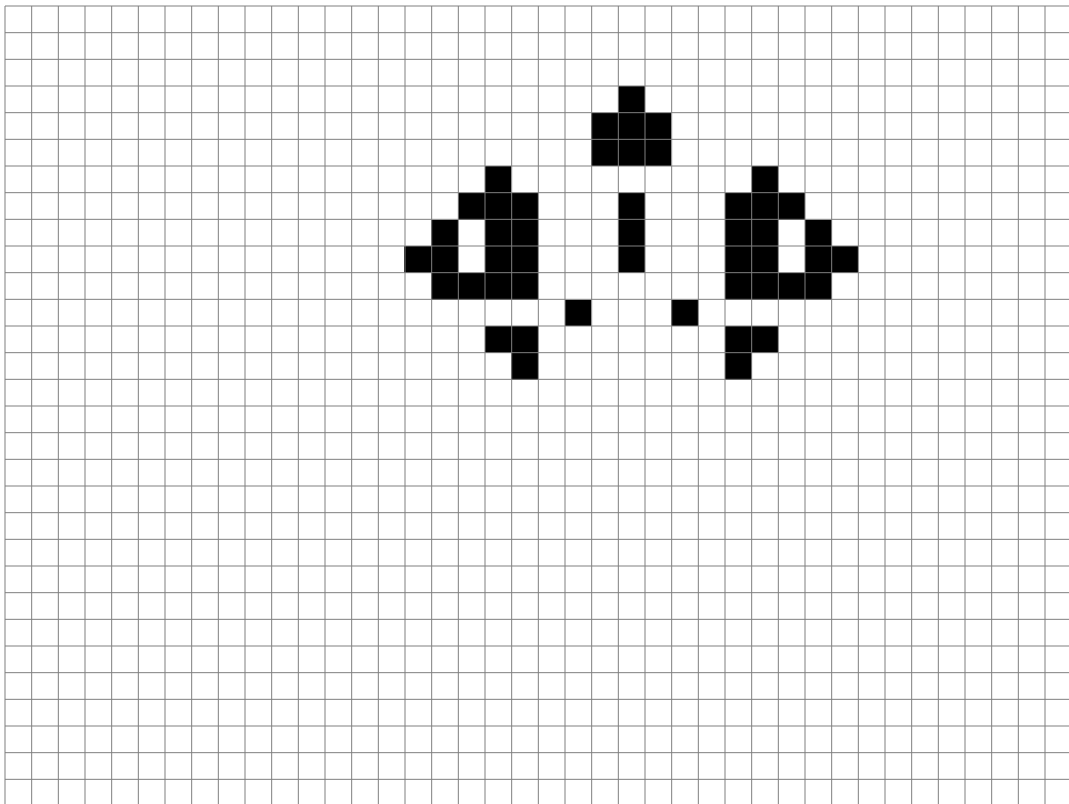




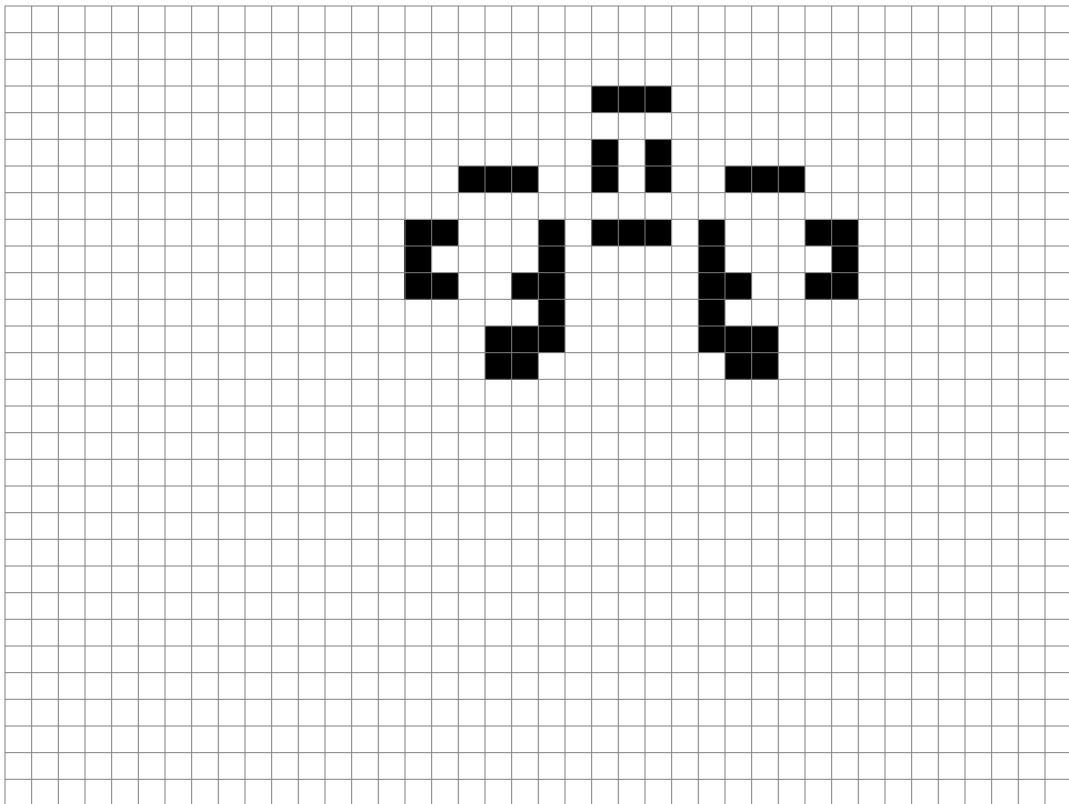


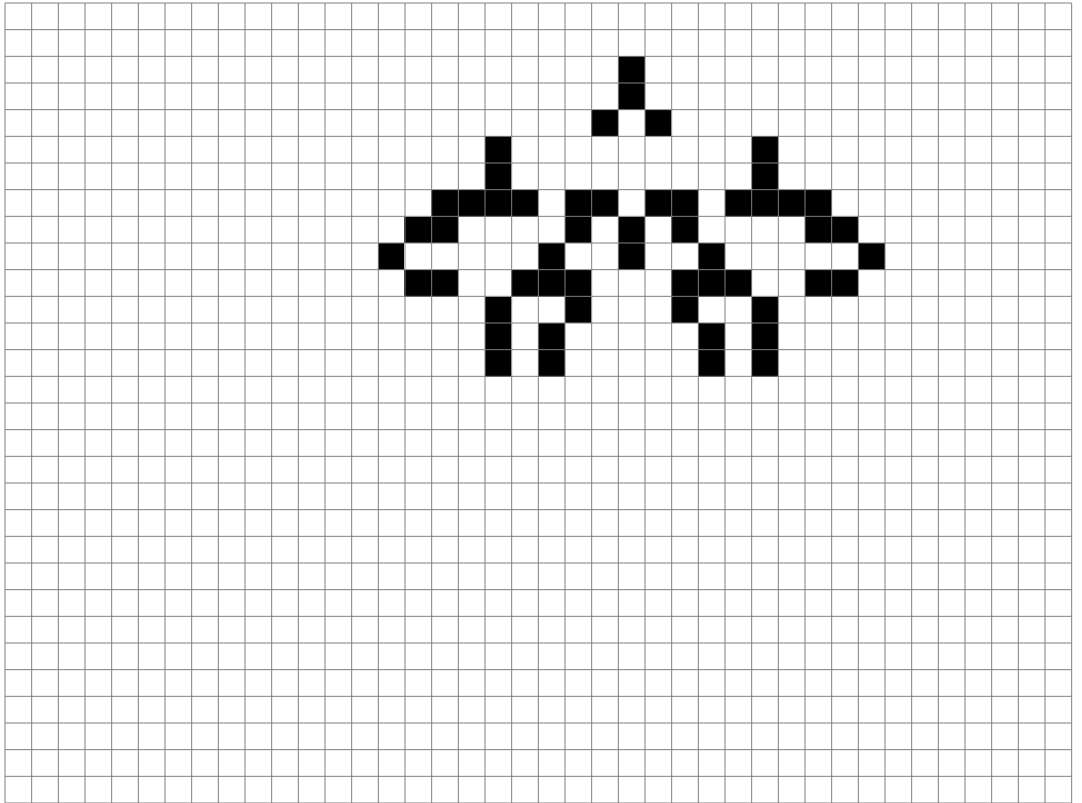












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The volume you hold in your hand bears only 49 generations each of two figures. This restriction is imposed by the maximum staple size on the printer I habitually use. Both sides flip back to front. The front-facing figure is the glider gun. The back-facing figure is called the ``pi ship'' and was discovered in 1997 by David Bell, one of my college roommates.

Because the Life generations are computed strictly in PostScript, as they're printed, the geometrically-inclined will immediately note the entropy-violating discontinuity: Because the Life rules can't be run backwards, the front-facing pages are all generated by first computing all the generations up to the one to be printed, so those 49 pages actually required  $50+49+\dots+1$  or 1225 generations to be computed.

Programming completed 8 May 2006; narrative text completed onboard United Airlines flight 258 to Denver, 10 May.



