

Evolution of Strategy for Escape Velocity

- We constructed a simple arm of parallel beams with no extra weight and a 1:3 gear ratio.^[1] We thought that speed only was what was needed to make the ship launch.
- We realized that weight was needed in addition to speed to make the ship launch, so we made a weight that was made of standard Legos and bulky.
- We compacted the weight's width by taking some of the pieces and putting them up on the other side, hugging the arm. (see [Figure A](#))
- We changed the gear ratio of the arm to 1:1.^[1]
- We swapped the weight out for a new weight made with studless Technic beams and frames because we thought that we weren't allowed to use regular Lego bricks.
- We then braced the arm so that it didn't twist when coming down.
- Shortened it so that it didn't pass the 1 foot limit
- Finally, we added an extension that stuck up off the weight when the arm was down so that the weight would be just a little heavier. (see [Figure B](#))

Photos

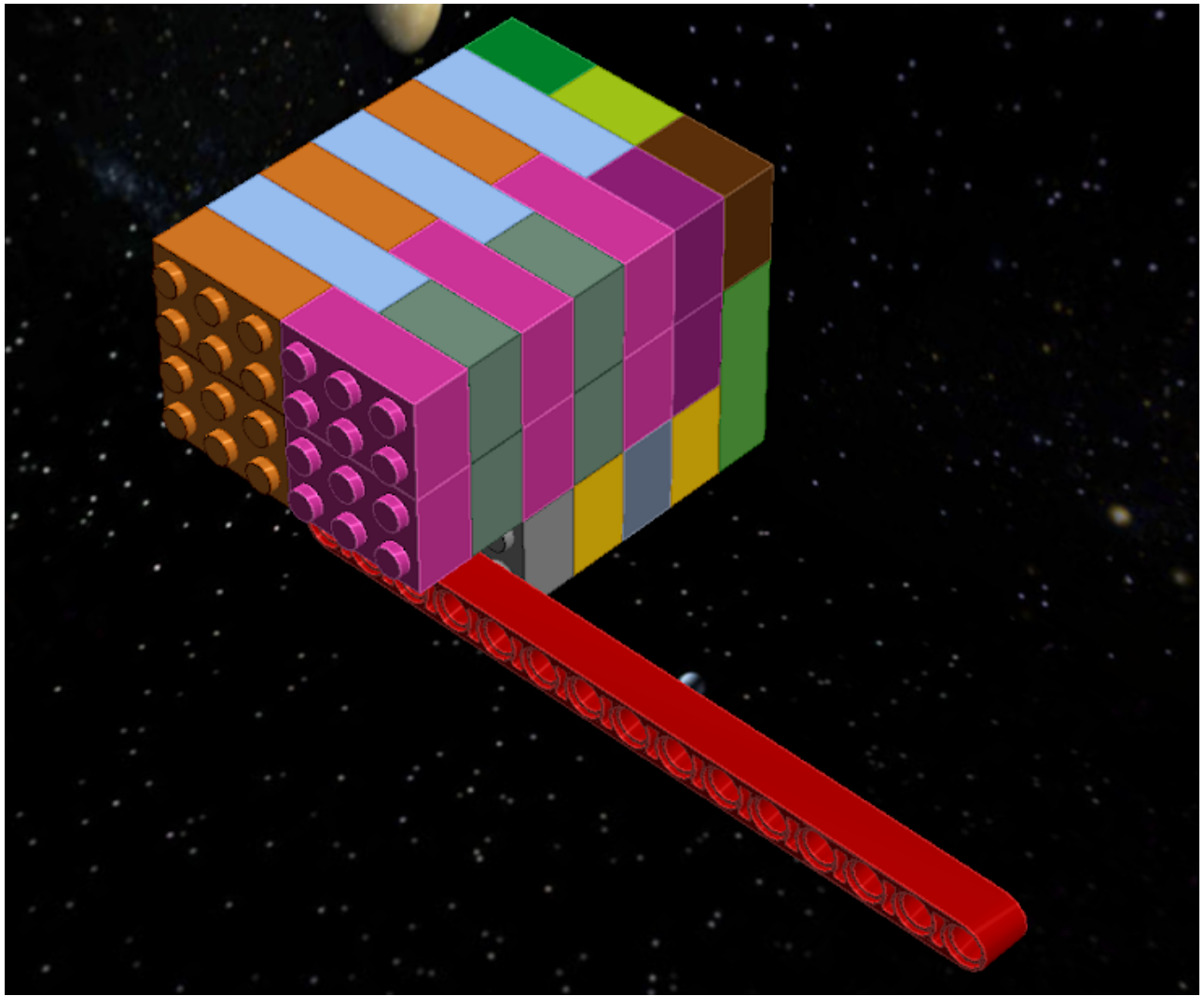


Figure A: A weight made with regular Legos and not bulky

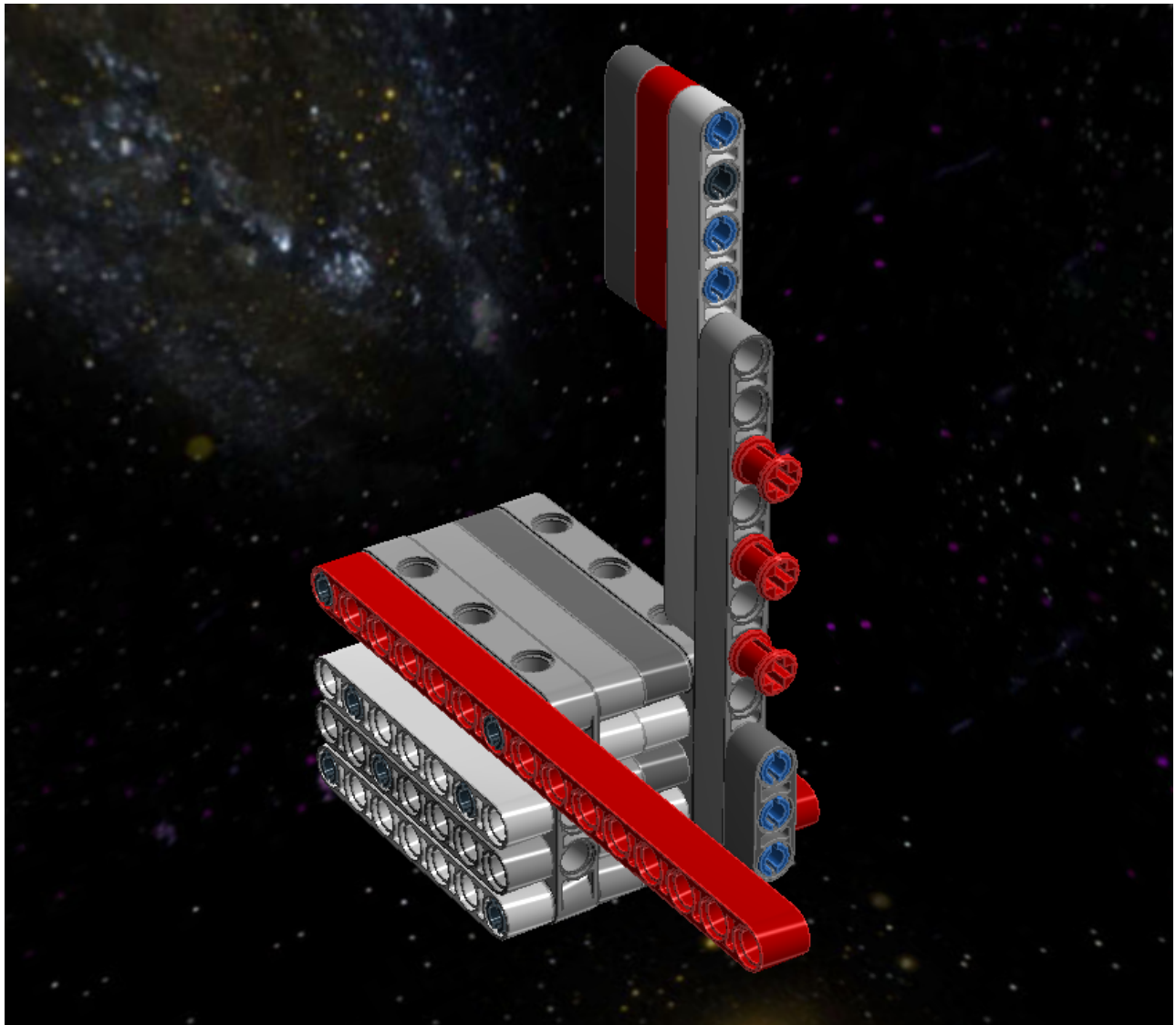


Figure B: Our final studless Technic weight

^[1] Gear ratios represent the amount that speed and torque change with it being the follower gear to the driver gear. For example, a 1:1 gear ratio has less speed and more torque than a 1:3 gear ratio.