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Subject: Somsy Gears by BILL SOMSKY and OSKAR  
Posted by [Oskar\\_van\\_Deventer](#) on Sun, 23 Dec 2012 11:34:16 GMT  
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Hi Shapeways fans,

Bill Somsy invented an algorithm to design exactly fitting Looney Gears, which I would call Somsy Gears. The key understanding is to start with three gears on a diagonal inside the fourth, e.g.  $37=7+13+17$ . Bill proved mathematically that this line of gears can flop around inside the larger circle while retaining an exact fit. Then repeat the process for another set, keeping the outer and central gear the same, e.g.  $37=11+13+13$ . The final step is to overlap the two sets such that the middle gear of one set coincides with the middle gear of another set. This can be achieved only at discrete positions, namely Somsy Gear positions.

The explanation may be a bit hard to follow, so I hope that the video and illustrations help. The Somsy algorithm can help finding exact sets with four planetary gears. Bill even found a set with six planetary gears, which he expects to be very rare.

Watch the YouTube video.

Buy the gear set at my Shapeways Shop. I added the extra 13-gear.

Read more at the Non-Twisty Puzzles Forum.

Check out the photos and sketches below.

Enjoy!

Oskar