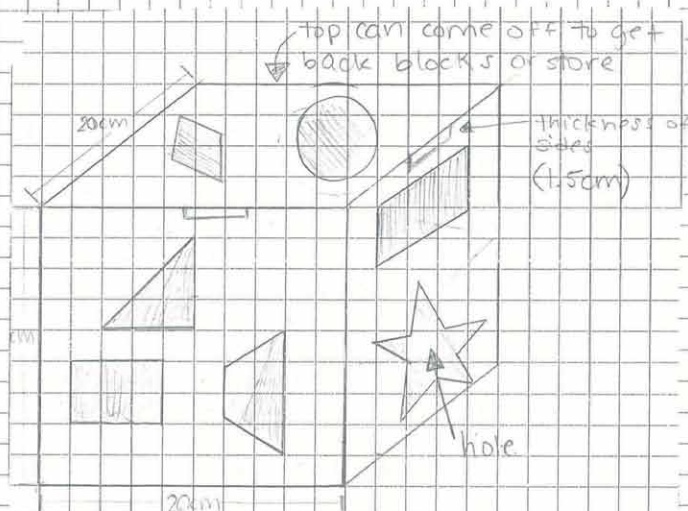
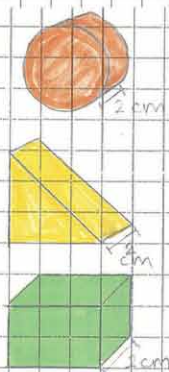


## Design 1 - shape sorting cube



colorful  
colorful blocks that  
go inside the holes:

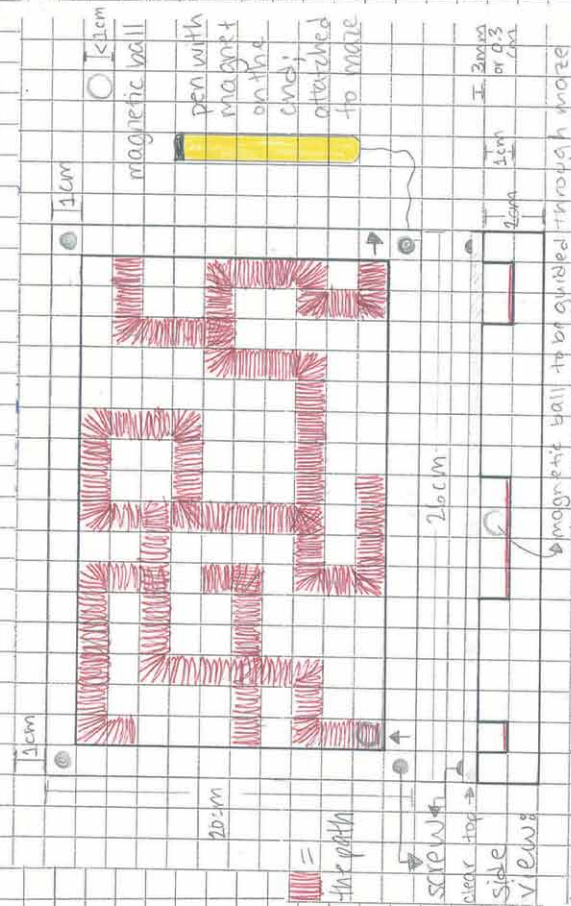


evaluate against design specification:

- ✓ **no sharp edges** - the edges of the box and blocks could be sharp, but it's possible to smooth them out a bit
- ✓ **no small pieces** - it is possible to make the blocks bigger than 5cm across
- ✓ **must be robust** - it will be strong, as the thickness of the sides of the box is 1.5cm
- ✓ **not too heavy** - this could become quite heavy
- ✓ **made of nontoxic materials** - the paint could potentially ~~be~~ not fit here, but I would check
- ✓ **must be interesting** - this would definitely be interesting and fun, but maybe too easy or quick
- ✓ **improves hand-eye coordination** - this shape sorting cube combines the hands (with the blocks) and the eyes (by finding the right holes), therefore improving hand-eye coordination

**MATERIALS:** wood, paint, paintbrushes, something to cut the wood with + shave the edges

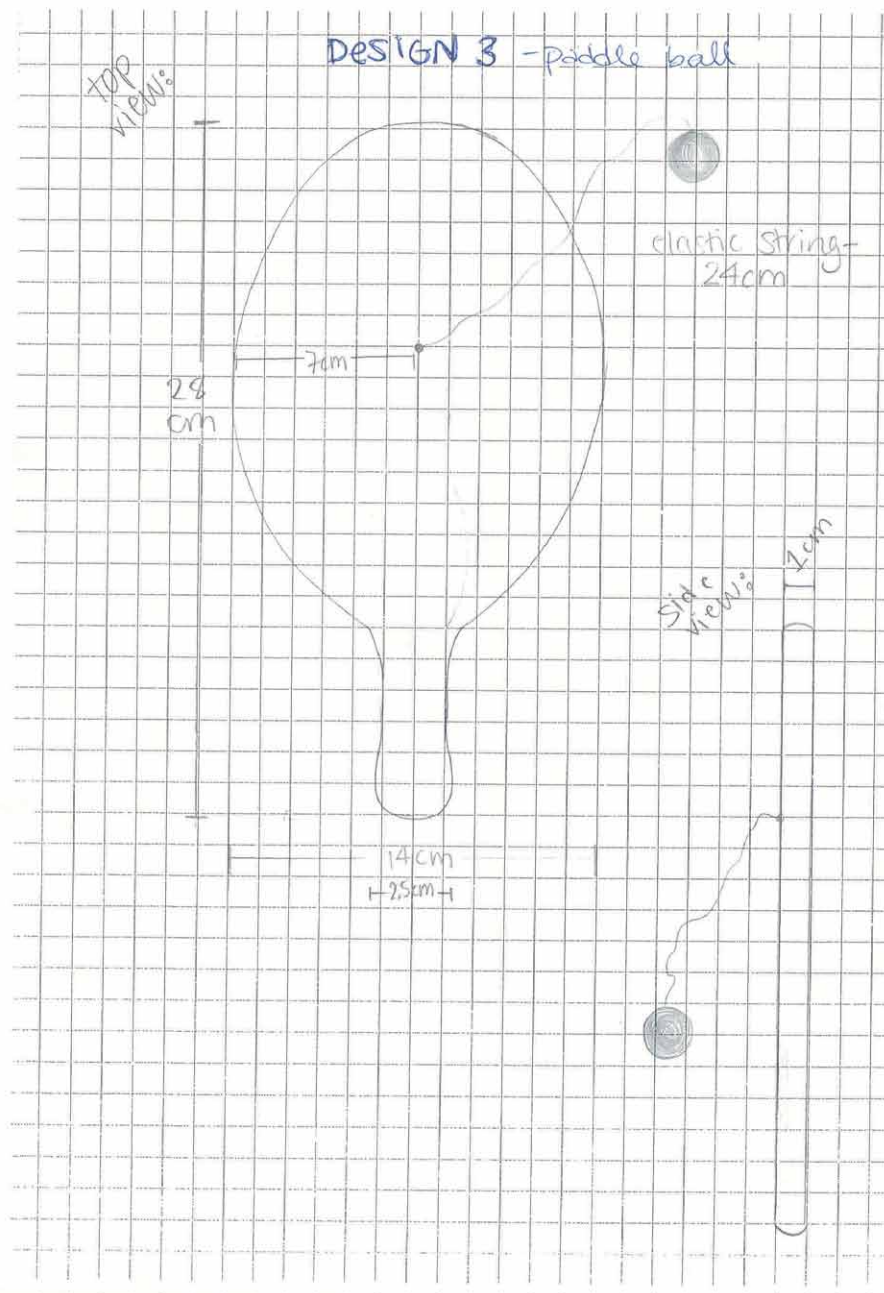
## Design 2 - magnetic maze



evaluate against design specification:

- ✓ **no sharp edges** - again, the edges have the potential of being sharp, but I can smooth them out
- ✓ **no small pieces** - the only small pieces would be the screws holding the clear top to the wood
- ✓ **must be robust** - it will be strong as the thickness is appropriate (2.3cm)
- ✓ **not too heavy** - this could also become quite heavy, but probably less than 2 kilos
- ✓ **made of nontoxic materials** - the paint could potentially not fit here, but I would check the labels
- ✓ **must be interesting** - This would be fun and interesting depending on the difficulty
- ✓ **improves handeye coordination** - this maze combines the hands (with the magnetic pen) and the eyes (by figuring out where to move the ball), so it does improve hand eye coordination

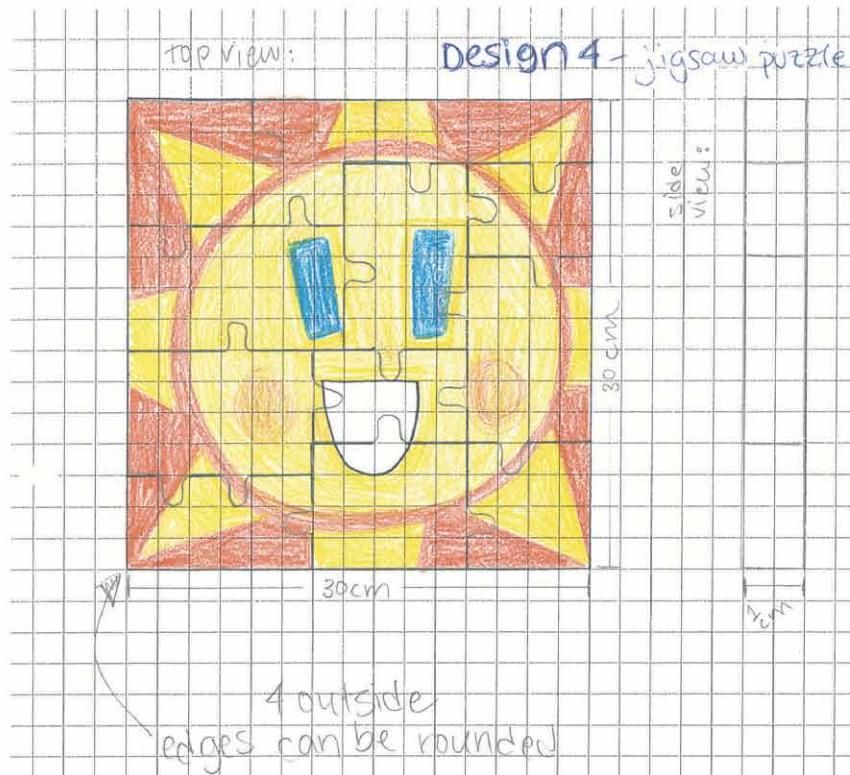
**MATERIALS:** wood, clear plastic, paint + brushes, magnet + magnetic ball, string, pen, 4 screws



evaluate against design specification:

- ✗ **no sharp edges** - There would be no sharp edges in this design, because it is all rounded
- ✗ **no small pieces** - the ball is small, but it depends what the diameter is in order to meet the specification
- **must be robust** - the string can be broken quite easily or the ball could fall off; wood = 1cm is strong (ish)
- ✗ **not too heavy** - this would definitely not be too heavy for a kindergartener (not more than 2 kilos)
- ✗ **made of nontoxic materials** - there are no toxic materials in this design
- ✗ **must be interesting** - this would definitely be interesting and a relatively long term toy to play with, <sup>but there's</sup> NO COLOR!
- ✗ **improves handeye coordination** - this does improve handeye coordination because the child needs to watch the ball bounce and move the wood so that it does bounce

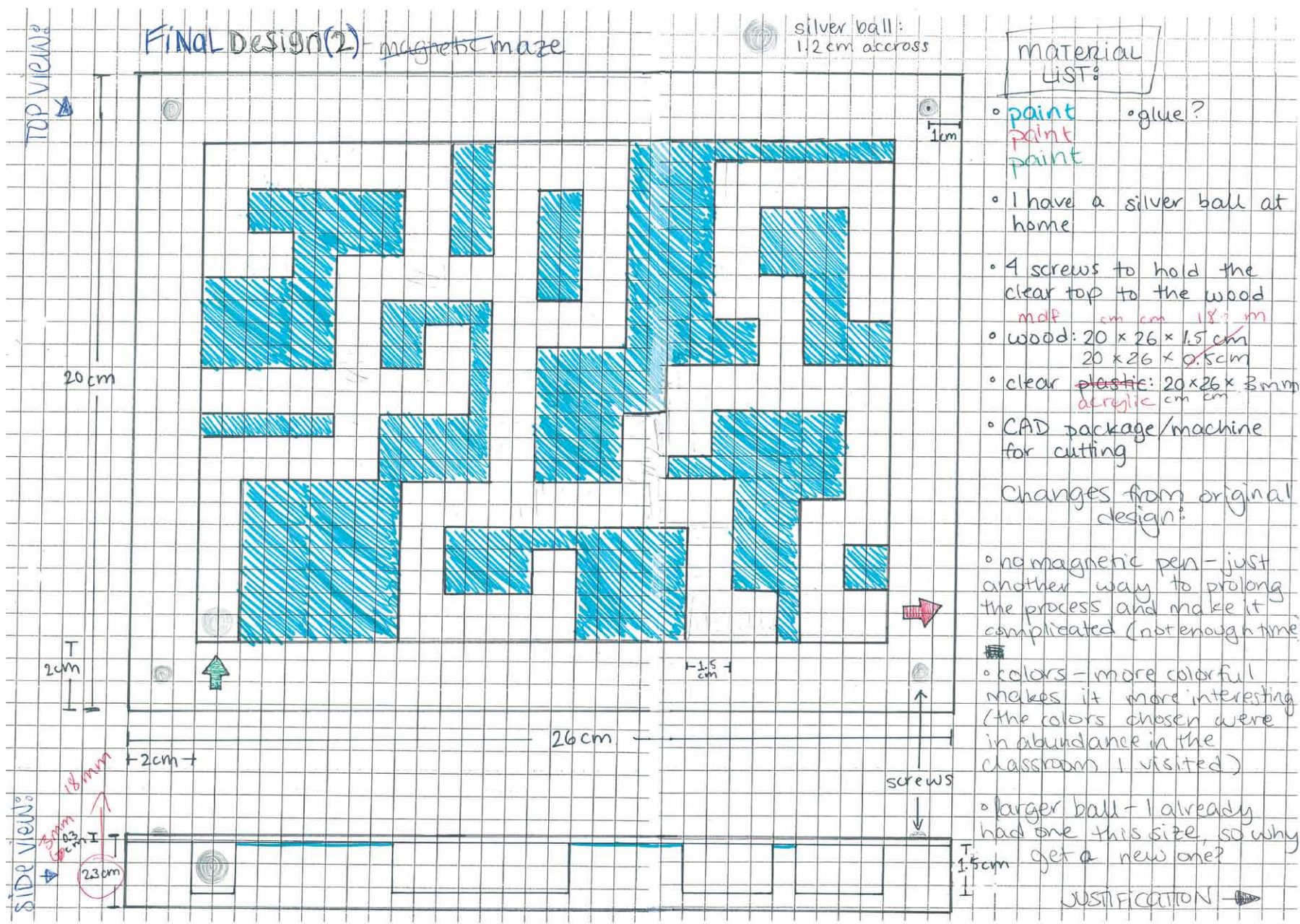
**MATERIALS** : wood, elastic string, rubber ball, paint



evaluate against design specification:

- ✓ **no sharp edges** - depending on the shapes of the puzzle pieces, there could be some relatively sharp edges
- ✓ **no small pieces** - each puzzle piece will be at least 5 cm wide, so no small pieces
- ✓ **must be robust** - the thickness of the pieces will be 1 cm, making them strong
- ✓ **not too heavy** - this will definitely not go above 2 kilograms, the weight limit
- ✓ **made of nontoxic materials** - I will make sure that the paint I use on the puzzle pieces is non-toxic
- ✓ **must be interesting** - this would be fun and interesting, especially if the picture is an exciting one (lots of color!)
- ✓ **improves hand-eye coordination** - putting the puzzle pieces together correctly uses hand-eye coordination: picking up and moving the piece to one of the neighboring pieces (which uses your eyes)

**MATERIALS:** wood, paint, paintbrushes, something to shave the outer edges maybe



# Justification:

There are many reasons why I chose design 2 (the maze) as my final design.

After changing it a bit from the original, I thought it was the most exciting design that would keep the kindergarteners playing with it for a while.

There are no sharp edges that cannot be smoothed out or shaved. The top and the wooden bottom's four corners can be dealt with.

There are small pieces that a kindergartener could choke on, like the ball and the four screws. However, the ball is contained between the clear top and the wood, and the screws will be keeping the two pieces together, so they should not come out.

The final creation will be robust, as the thicknesses are practical and there are no protruding pieces that can be snapped off.

This could become heavier than the other designs (3 and 4). However, it could not be much over 2 kilos, if this is the case.

The toy should not be made of toxic materials. The only thing that could, perhaps, have a problem would be the paint. However, it is quite easy to read the label and find out.

This will definitely be interesting to the kindergarteners. The difficulty is not too great, and it is colorful.

This toy definitely improves hand eye coordination. The kindergarteners' hands and eyes must work together in order to complete the maze. It combines deciding where to move the ball (with the eyes) and tilting the toy to make the ball move (with the hands).