Gold Rush

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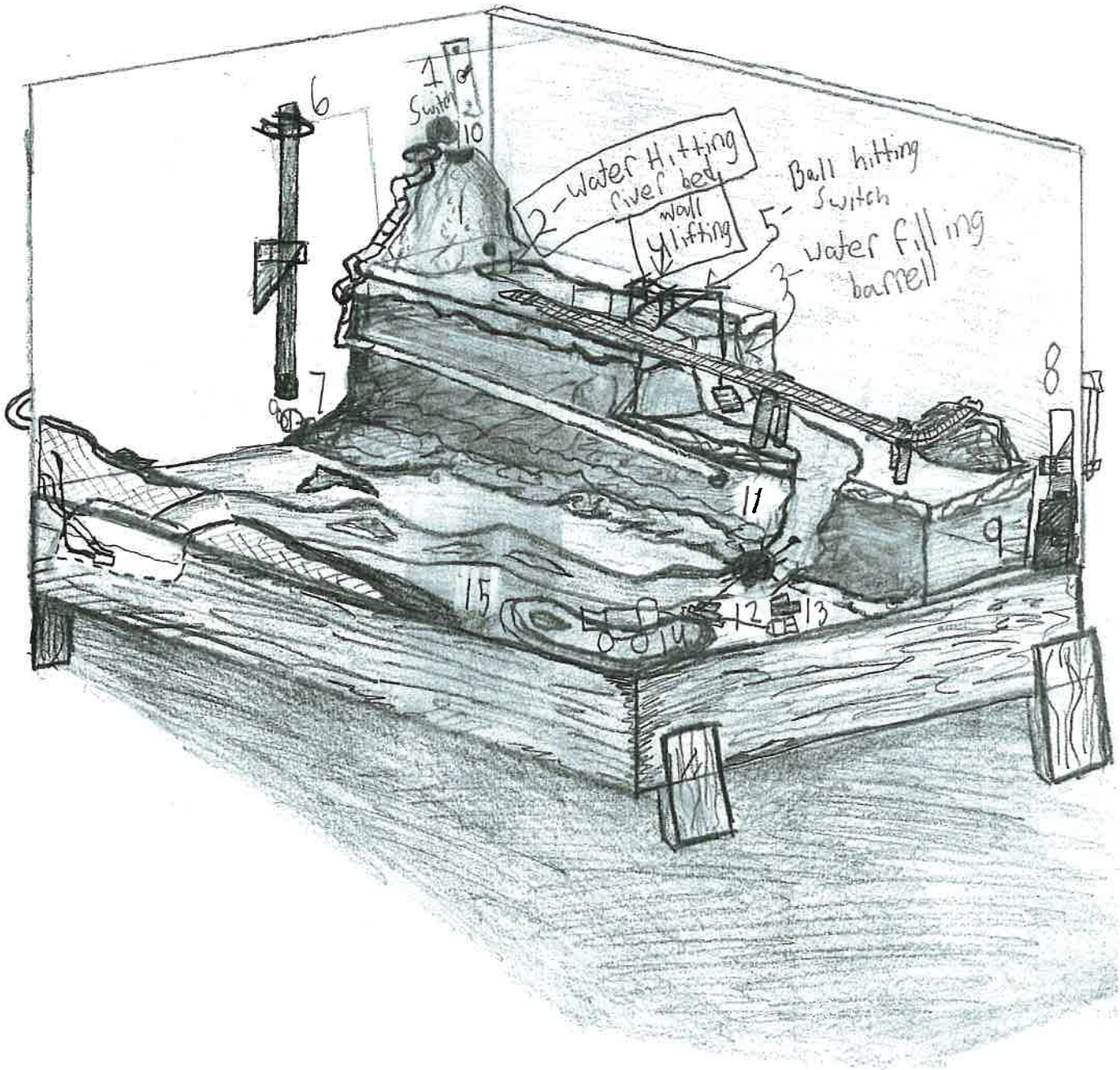
Machine Steps

1. The switch is flipped, activating the water pump.
2. The water fills the barrel and pulls down the cord
3. Making a ball roll and hit a switch
4. The switch activates a train to go and pull a string
5. This drops a magnet down a copper pipe.
6. Which turns a lever
7. The lever pushes a button and causes the chair motor to move
8. Which then pushes a tube to cause a Balloon to expand
9. While the balloon expands it pushes a metal ball to go down a series of pipes.
10. The ball from the pipes then hits a water wheel, which then hits a bearing.
11. This ball bearing then falls on a mousetrap which turns on the switch for the sawmill
12. Sawmill activates, which pushes log down track which hits a marble
13. Marble hits wall that falls
14. That lets magnet fall down copper tube
15. Magnet hits the switch that turns on the moder
16. That fits the hand
17. Signal is set to the boom that lifts and uncovers the gold

Final Machine Sketch



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Cost Of Machine And Recycled Items

Item	Cost
Copper Pipe	Free
Copper Fittings	Free
Base Materials	Repurposed
Electrical Components	Free
Ball Bearings	Repurposed
wood scrap	Repurposed
water pump	Donated
Pop Bottles	Free
Paint	Donated
Rare Earth Magnets	$29.97
Metal Objects	Scrap
Nails and Screws	Repurposed
Baking Soda	Repurposed
Vinegar	Repurposed
Train	donated
polystyrene	Donated

wood scrap	Repurposed
modeling compound	Donated

caulk	Repurposed
excavator	$49.00

Total Machine Cost: $78.97

Percent Recycled: 95-98%

Stem Process

Chemical Reaction: The syringe is compressed releasing vinegar into a bottle with

baking soda. CO_2 gas is produced inflating a balloon.

Electrical: A recycled recliner motor is turned on using a pressure switch.
Pneumatic: balloon files with co2 gas to push the ball bearing.

Fluid Power: A syringe is compressed to create the chemical reaction.

Reflection

A few of the problems we encountered were that we had trouble getting the water to fill in the bucket the water would flow around it, so we added a piece of bronze welding rod to make use of surface tension to pull the flow of water towards the barrel. The other main source of problems came from our train system. The switch we were using to activate it was very unreliable, it was set in a way that the first position was off middle was on, and then the next position was off. So it became very difficult to hit the stitch with enough energy. And if we used a ball bearing that was too large then the barrel wouldn't fill with enough water to release the bearing. So we refit it with a new toggle switch so it can only be set to on or off. However we did have another problem where a group member tried to see if two exposed wires would shock them, So they cross-connected them with a screwdriver to see if it would through a spark what it did do though was a short circuit the motor and at the time of writing this we have not fixed it.