

Ropes and pulleys



EcMenz summit 2014



Grabs the pull rope



Pulling on the rope.



Spiderman appears



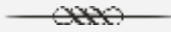
Spider man climbing up



Spiderman climbs up to the
top



Letting go of the rope and
spider man disappears.



This one is gravity
powered



Let go of the rope and the
wolf slides down (flying fox)





Pulling the wolf back up.

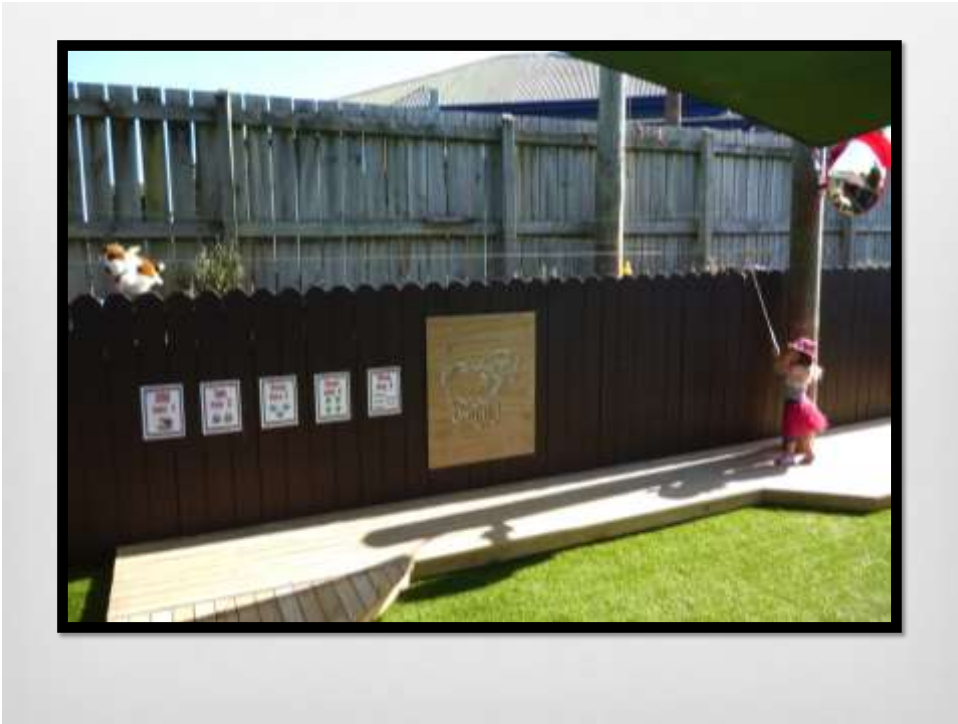


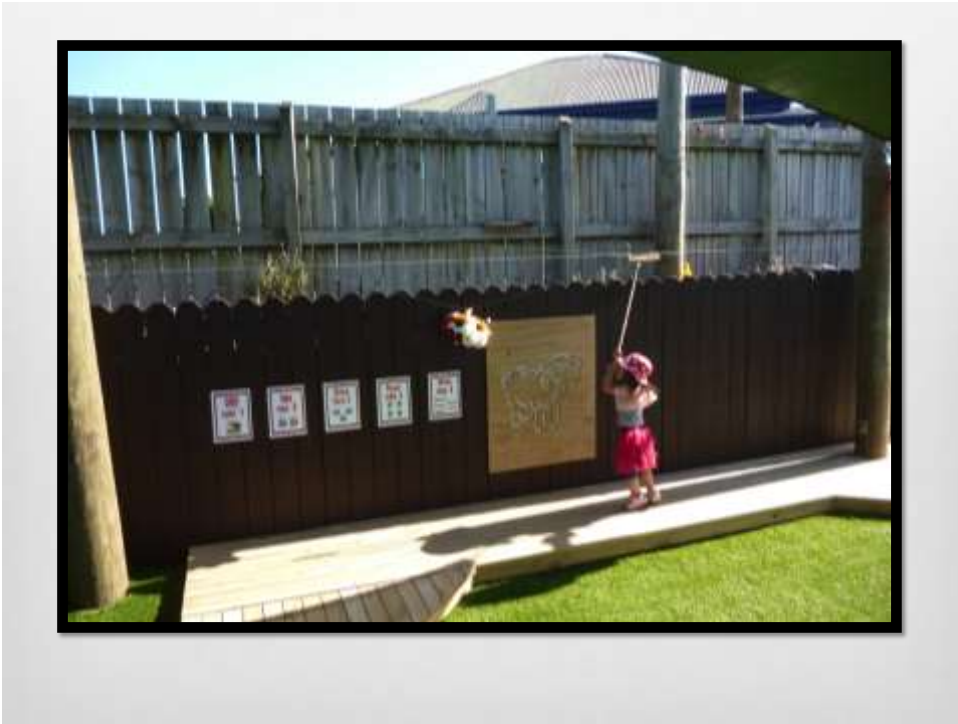
Closed loop



It goes the wrong way!









What James making this time?





Testing phase



It already had me hanging off each knot, so it was not really testing.
However the kids did not know that!



They added one child at a time



Just to see what happened.



Then a few more.





Following on from rope bridges.

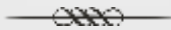


Q Exactly how many children can fit on the spiders web?

A No idea lets find out!



8 children... a new record



Broken the next morning with 17 children on it at once.



The strange swing



Boys really struggle with this...

Simple reason they don't work as a team. It took about a week before they could use it.

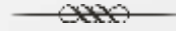
Girls took about 30 seconds



Another tyre swing. It took us an hour to make.



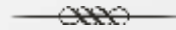
Rope bridge



Two children
trying to pass
each other.



Pulleys get up scaled



Originally was a pulley to move
buckets across the sandpit.

However children being
resourceful as ever worked out
you could swing on it like a flying
fox!



Testing!

I figured if it could hold me, it should be strong enough.



Flying fox

It's certainly not fast and they aren't very high. They can stand up anywhere by putting their feet down. However it often has a queue of 8 or so children waiting.

This was a total accident. But the kids have had such fun with it over the last 18 months.



This is what started it all!



It's really basic. 3 eye hooks 50c each from Mitre 10 and small block of wood, talk nicely to Mitre 10 they might give you this.



Where to put them



Ideally at the side of the playground out of the way.

Don't cross them over walkways if you can, a horizontal one can if it's high enough.

What to make them from



The main cord needs to have a breaking strain at least twice the weight of your heaviest child as they pull on them.

Fishing line is great, talk to a fishing shop, they often have leftover 37KG fishing line they throw away. Two lengths gives enough strength and lasts a good 6 months. It also has a bit of stretch.

Note of caution, you can't break this stuff with your hands, keep scissors handy. In case something does happen

The lines children pull



Horizontal, so long as the line doesn't at any point hang low enough to go around the tallest child's neck. You can make them out of almost anything

Diagonal, this is somewhat harder as at the lowest end you have a long length available. I got around this using wool, I just check it breaks easily first. That way if it gets caught, it should break. This is however no substitute for observation.

This has been a focus for the last 2 years, 2-5 years.

- ☞ We have made many many different things over this time. So many I have actually lost count.
- ☞ The children have learned through experimentation and then shared their knowledge with others.
- ☞ They have done some random experiments with the ropes and pulleys over the last 2 years. My personal favourite was accidentally making a flying fox. Which is on its 4th or 5th incarnation right now.

What have I personally learned

- ☞ Children don't do what you think they will.
- ☞ Children when exploring will do so in groups. They talk about what they have just done and then make hypothesis amongst themselves about what else they could do and or whats going to happen. Their level of critical thinking was impressive.
- ☞ Strangely they will take calculated risks and even asked a teacher if there were not 100% sure several times. (when we moved to using ropes to support many children, like rope bridges) the ropes were rated at >1000KG so 20 children would not break them.

Science



Volcano

A volcano with vinegar and baking soda...

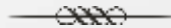
It's much cheaper and lasts a whole lot longer if you just bury a hose pipe under the mound. They learn about erosion as well.

Or mix baking powder with citric acid. Then add water with washing up liquid... try it. It also makes sherbet with the addition of a packet of powdered orange drink and icing sugar.

(for sherbet don't add washing up liquid...)



Safety



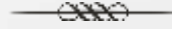
This slide from England has a 16 meter length of rope wrapped around it.

A little girl on her first day, was left for 20 minutes and died from her injuries.

The teacher has been charged with man slaughter because of gross neglect. The teacher was found not guilty, the owners were however found guilty.



Another rope on a slide



This was caused by a rope on the slide. Child survived.

Never ever use a rope on/or near a slide, unless it is tethered both ends.

Think can the rope get around a neck, if it can don't do it. (unless it's a skipping rope)



I would like to say thank you to the team at First steps Waiuku.



They are a great and supportive team, without their support I probably would never have done any of this.

(this is us collecting 3 trust mark awards at the south Auckland kidicorp conference August 2013.)