XO-Learning Activity: My Community

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My Community

Learning objectives:

Learn and construct the concept of community.

Make connections between aspects of everyday life and concepts from different areas of knowledge.

Build models using computational and non computational tools. Make connections to powerful ideas in math and science.

# Exercise: The history of my community

Ask questions:

   - Help children asking questions for their investigation about their community

Find and build:

   - A video about the history of the community

   - A document with different stories written or told by members of the family

Collaborate:

   - Organize groups to exchange and share stories

   - Create a collective history of the community

The Story of My Community

My grandmother told me that...
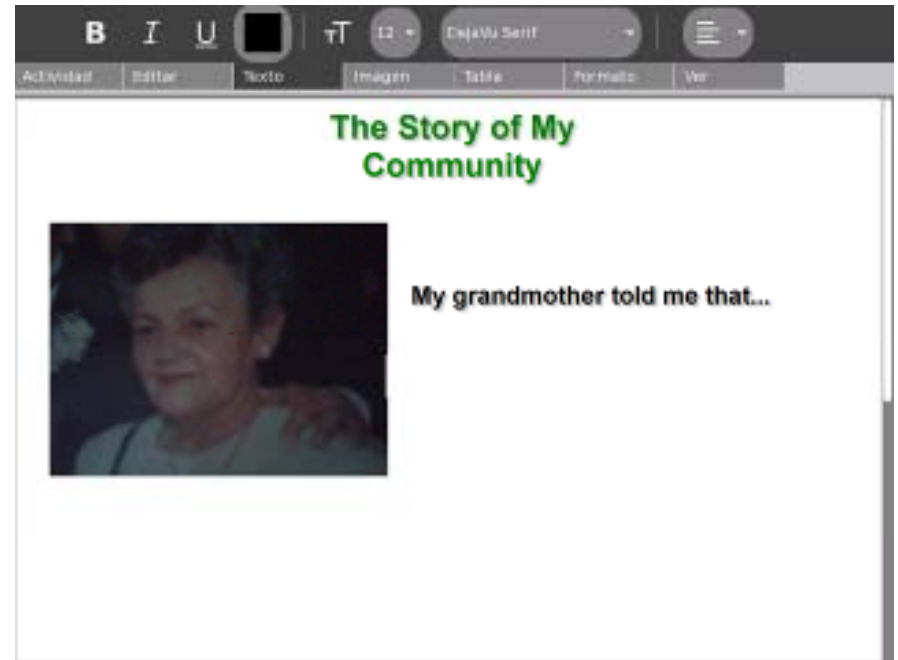
Exercise: My map of the community
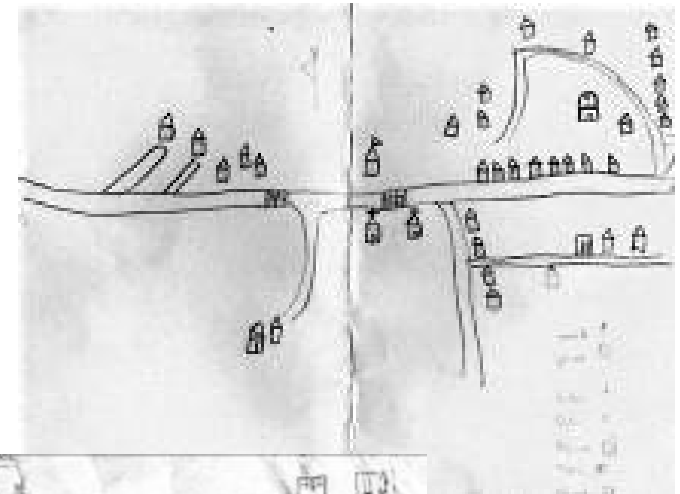

Learn about maps :
- Direction – The compass and other
  ways to find the cardinal directions
- Strategies to build a map (scale)

Build:
- A map of the community using paper
  and pencil

Organize and discuss:
-The different maps and strategies
  used by children to build them
- Review the concept of scale and its
  relevance to the creations

Exercise: Computational tools

Re-examine:
- The different designs and pencil on paper, maps, and strategies used by the students

Build:
- Select computational tool(s) according to interest and abilities of the children
- Start the building process

Integrate:
- Concepts from different areas that are relevant (communication means, transportation means, institutions, etc.)
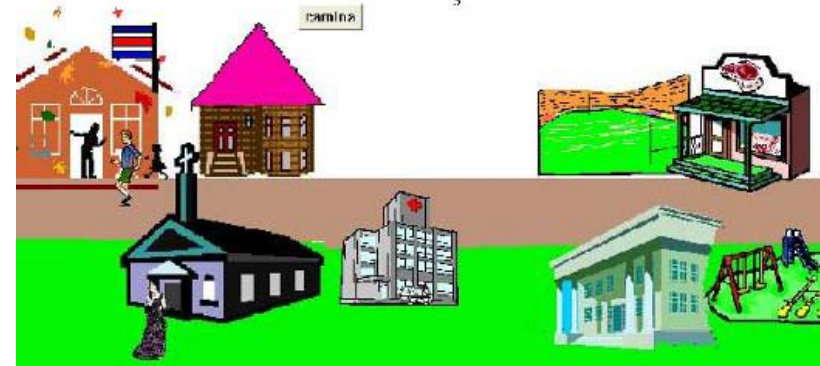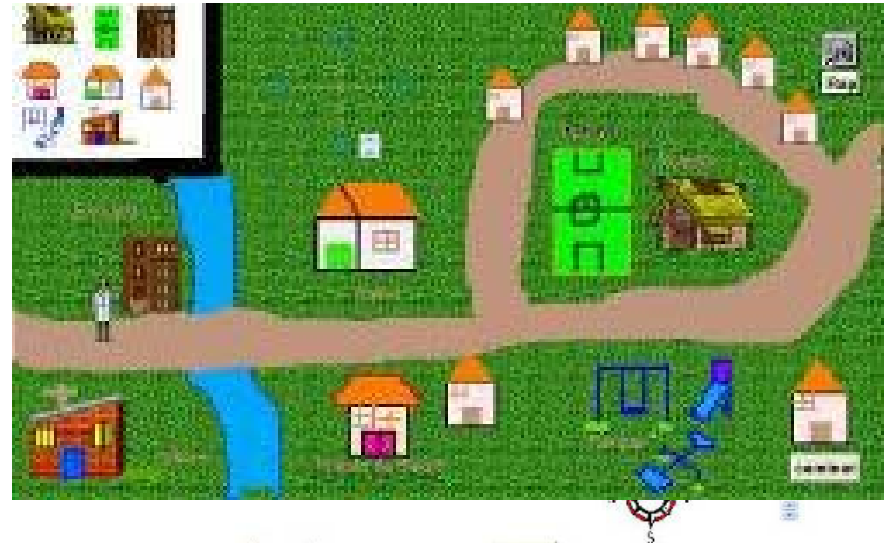
Physical map of the community

Constructing a physical model of the community adds an important dimension to the learning experience of the children and also contributes to the appropriation of powerful ideas. As Papert says (Papert 2002), "what gives the idea a high rating in a more intellectual dimension of idea power is the diversity of its connections. "

Building a physical model of the community, the child makes new connections with concepts used and learned in previous activities, such as the representation of a physical space (maps) and the directions, but new ones such as, scaling, conversion between units, etc.

Exercise: Physical map of the community

Prepare to build:

- Draw a map of the community in the surface where the physical model of the community will be created
- Calculate the scaling factor:

    Factor = Size of the community / size of the surface

- Find the size of the community using a magnetic sensor, which can connect to the microphone port and measure the bicycle revolutions (see picture)

    Circumference = π * diameter
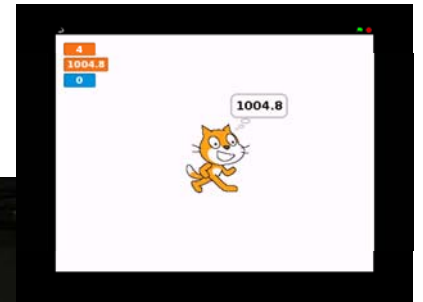   Size = revolutions * circumference

Exercise: Physical map of the community

Use:

- Computational tools to calculate the distance. Perhaps you could write a program in Scratch to calculate the distance traveled (see picture).

Build at scale:

- Ask each student to measure her/his own house and calculate the size at scale
- Build the other elements in the community (church, park, etc.)

Exercise: Physical map of the community

Other options:

- Use a straight triangle and the following
  trigonometric formulas to calculate the
  height of the house:

  Sin (Q) = Opposite side / Hypotenuse
  Cos (Q) = Adjacent side / Hypotenuse
  Tan (Q) = Opposite side / Adjacent

- Use a clinometer to calculate angle Q
(see picture). Instructions to build a simple
clinometer can be found in

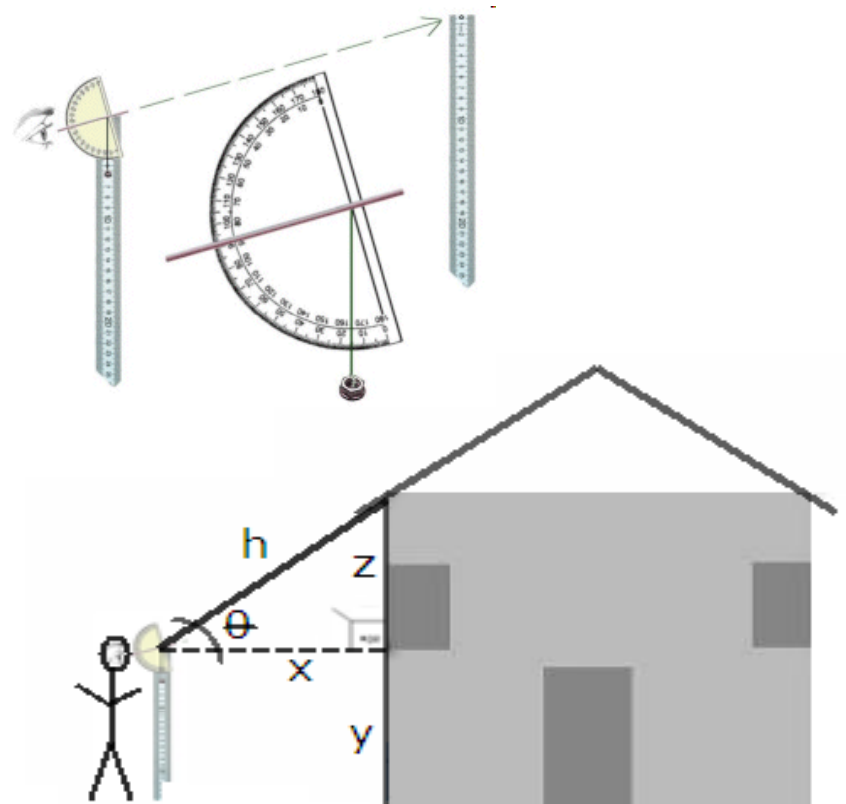 http://www.state.nj.us/dep/seeds/syhart/clinom.htm
  Z = Tan (Q) * X
  Height of the house = Z + Y (height of the person)

Reflect and discuss:

What do you think about your community?
What surprised you when you see the
finished model? How would you like to
improve your community?