Shark Lake - Requirements & Timeline

Premise:
Summerside is introducing a new subdivision to the Shark Lake community (est. 2013), which has a number of lots available for development. Because of the lot sizes and neighbourhood requirements, you have some limitations on the type of house and materials available to you.

Your job, as homebuilders, will be to design, build and wire a 1:24 scale model home for this development. The requirements for your finished product are:

- Single family detached house
- No garage *note: some groups may choose to do attached garages with teacher permission.
- Detachable roof
- Rectangular footprint
- Front and back door
- 1 window per wall (minimum) – to scale and of appropriate size for location
- Minimum of 2 interior rooms
- Google floor plan - interior design of ground floor
- Doorbell
- 1 light with on/off switch
- 1 light with dimmer
- 1 ceiling fan

In order to do your best work, the following tasks will need to be completed, in order and checked off by a teacher before you can move on to the next step.

Home Construction Task	Teacher Initial	Electrical Wiring Task	Teacher Initial
Neighbourhood Walk – take pictures of homes		Circuit Diagrams - One 4-branch parallel circuit with all required devices Two 2-branch parallel circuits, each with two of the required devices.	
4 view drawings – basic for window and door placement		4-branch parallel circuit built with test materials	
Correct calculations and measurements for: Floor to ceiling height Doors Windows Porch		Electrical blueprint on net	
Sketch of net with correct measurements labeled		Length of wiring calculated and listed for each device.	
Paper copy of net (front and back gable included)		Control panel constructed	
Trace onto corro-plast		Devices connected to control panel	
Cut out net, windows and score sides for folding		Circuits built into home	
Roof traced on paper – focus on appropriate overhang on all sides		Test voltage, current & resistance	
Roof traced and cut out of corro-plast		Calculate power used	
Details – window trim, porch, stone finishing, chimney		Measure power output	
Floor plan created for main floor		Calculate efficiency of each device	
Calculate surface area of the house walls and roof			
Calculate cost of shingles and siding			

Discrete Lessons:

- Scale and scale drawings
- Creating a proper net
- Surface area
- Floorplanner
- current electricity, resistance, voltage,
- parallel vs. series circuits
- calculate power
- calculate efficiency

Detailed Timeline and Connections

Much of the work is cross-disciplinary therefore is not broken into specific subjects

Time period/ Date	Science	Math
Week of March 17-19	Introduction to Electricity - static vs current electricity - circuit construction - circuit diagrams	
Week of March 21-28	- voltage and current - resistance & Ohm's law - series vs parallel circuits	
April 7	The Shores at Shark Lake Entry Event - neighbourhood walk/pictures - initial sketch of home	
April 7 - 10	Initial sketch complete Mini lesson to review scale of 1:24 Students given actual length & width of house - calculate the scale measurements Draw small sketch of net with labeled measures for length and height, dimensions of windows etc. - small net diagram with all measurements recorded. Scale Drawing on Large paper, traced onto corro-plast ***Full day of work on April 10 - LOT auction this day.***	
Week of April 13 - 17	- circuit drawings - parallel practice circuit - electrical blueprint and home wiring begins	- trim cut out and glued on - porch and deck design
Week of April 20 - 24	Continue wiring	Final construction of porch, deck and and floorplans
April 24	**YESS GALA**	
April 27 & 28	Circuits finalized and tested with transformer power source.	Floorplans printed
April 29	**HOMES MUST BE COMPLETE**	
April 30	**Final discussions on power hook up & unveiling expectations** **Set up Neighbourhood After School -** see Showcase Task List for details	
May 1	**The Shores at Shark Lake Showhome Unveiling** - Grade 9s in small gym all morning, back to regular classes in afternoon - Community Members all morning - School classes all afternoon	

To Schedule:

Guest presentation from Epcor:

- how is electricity transmitted to the home

- power grid design