

AQS200 – Root Cause
Exercise 11b
 Root Cause Elimination – TRIZ

Name: _____ Date: _____

Instructions:

1. Apply the TRIZ method to the problem provided below.

Community Problem Solving

A small rural community identified *the lack of a community college or other access to higher education* as a primary barrier to economic development.

Attracting a private college or obtaining state funds to build a new community college was beyond the community’s financial and political resources. And, most homes in this economically depressed region did not have computers or internet access.

Apply the TRIZ method and come up with a creative solution.

Steps

1. Identify the problem, and its operating environment, resource requirements, primary useful function, harmful effects and ideal result.
2. Formulate the problem more precisely, using the so called prism of TRIZ to focus on physical contradictions.
3. Search for a previously well solved problem, based on **39 standard technical characteristics** that cause conflict (termed engineering parameters), first finding the principle that need to be changed then the principle that is an undesirable secondary effect.

1.	Weight of moving object	21.	Power
2.	Weight of non-moving object	22.	Waste of energy
3.	Length of moving object	23.	Waste of substance
4.	Length of non-moving object	24.	Loss of information
5.	Area of moving object	25.	Waste of time
6.	Area of non-moving object	26.	Amount of substance
7.	Volume of moving object	27.	Reliability
8.	Volume of non-moving object	28.	Accuracy of measurement
9.	Speed	29.	Accuracy of manufacturing
10.	Force	30.	Harmful factors acting on object
11.	Tension, pressure, stress	31.	Harmful side effects
12.	Shape	32.	Manufacturability
13.	Stability of object	33.	Convenience of use
14.	Strength	34.	Repairability
15.	Durability of moving object	35.	Adaptability
16.	Durability of non-moving object	36.	Complexity of device
17.	Temperature	37.	Complexity of control
18.	Brightness	38.	Level of automation
19.	Energy spent by moving object	39.	Productivity
20.	Energy spent by non-moving object		

4. Look for analogous solutions and adapt them to the problem, based on the **40 inventive principles** (see Handout 7), producing hints that will help an engineer find an inventive solution.