THE EDUCATION FUND

FOR EXCELLENCE IN MIAMI-DADE PUBLIC SCHOOLS

2017-2018

Ideas with IMPACT

idea packet

Sponsored by:

Ford Motor Company Fund

Surviving a Zombie Apocalypse

Fear the Scarce Resources

Dr. Keith Astuto *kastuto@dadeschools.net*
TERRA Environmental Research Institute
Mail Code: 7029

For information concerning Ideas with IMPACT opportunities including Adapter and Disseminator grants, please contact: Edwina Lau, Ideas with IMPACT Program Director The Education Fund 305-558-4544, Ext. 113 Email: elau@educationfund.org www.educationfund.org

Table of Contents

Overview

In a cooperative education activity, students explore the implications of the three key economic questions: What will be made? How will it be made? Who will get the benefit/How will it be distributed? After successfully completing the preliminary rounds, students are treated to a survival adventure where they continue to delve into how their actions form the answers to the key questions as they navigate a zombie apocalypse. The tension mounts as the consequences of their choices become apparent. A debriefing with Socratic questioning and a post-activity assessment allow students to share and nail down (my apologies for the pun) their economic knowledge.

Content standards

State of Florida NGSSS Strands, Standards and Benchmarks

Economics

SS.912.E.1.1 Identify the factors of production and why they are necessary for the production of goods and services

SS.912.E.2.1 Identify and explain broad economic goals.

Council for Economic Education Voluntary National Content Standards - *2nd Edition*

Standard 1: Scarcity Students will understand that:

Productive resources are limited. Therefore, people cannot have all the goods and services they want; as a result, they must choose some things and give up others.

Students will be able to use this knowledge to:

Identify what they gain and what they give up when they make choices.

Benchmarks Grade 12

1. Choices made by individuals, firms, or government officials are constrained by the resources to which they have access.
2. Choices made by individuals, firms, or government officials often have long run unintended consequences that can partially or entirely offset or supplement the initial effects of the decision.

Standard 2: Decision Making Students will understand that:

Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Many choices involve doing a little more or a little less of something: few choices are “all or nothing” decisions.

Students will be able to use this knowledge to:

Make effective decisions as consumers, producers, savers, investors, and citizens.

Benchmarks Grade 12

3. To compare marginal benefits with marginal costs that are realized at different times, benefits and costs must be adjusted to reflect their values at the time a decision is made about them.
6. Some decisions involve taking risks in that either the benefits or the costs could be uncertain. Risk taking carries a cost. When risk is present, the costs should be treated as higher than when risk is not present.

Standard 3: Allocation Students will understand that:

Productive resources are limited. Therefore, people cannot have all the goods and services they want; as a result, they must choose some things and give up others.

Students will be able to use this knowledge to:

Evaluate different methods of allocating goods and services, by comparing the benefits to the costs of each method.

Benchmarks Grade 12

1. Comparing the benefits and costs of different allocation methods in order to choose the method that is most appropriate for some specific problem can result in more effective allocations and a more effective overall allocation system.

Standard 4: Incentives Students will understand that:

People usually respond predictably to positive and negative incentives.

Students will be able to use this knowledge to:

Identify incentives that affect people’s behavior and explain how incentives affect their own behavior.

Benchmarks Grade 12

1. Acting as consumers, producers, workers, savers, investors, and citizens, people respond to incentives in order to allocate their scarce resources in ways that provide them the highest possible net benefits.

Concepts

The concepts taught or reinforced in the lesson include:

- Allocation
- Distribution of benefits
- Choice
- Decision-making
- Incentives
- Opportunity cost
- Rationality
- Scarcity
- Trade-offs

The lesson is targeted at High School students in grades 9-12, and is suitable for classes in macroeconomics, microeconomics, or a general survey economics course.

Objectives

Students will be able to:

- Explain and differentiate between the concepts noted above
- Analyze the difficulties and consequences that arise when trying to solve the key economic questions.

Materials

- Computer/projection system or interactive whiteboard
- PowerPoint program and included slide show
- Participant maps (see PowerPoint file)
- Cabinet content lists (see PowerPoint file)
- Operator's ground map (see PowerPoint file)
- Simulation operator's notes (see last page here)
- General questions testing prior economic knowledge (see PowerPoint file)
- Wrap-up questions (see PowerPoint file)
- Capstone: Exemplary Lessons for High School Economics – Teacher's Guide

ISBN: 1-56183-515-3; Unit 1: Lesson 3 on p. 15 (this document is also available as part of CEE's Virtual Economics collection)

Procedure

Preparation

• Create one map for each student team. This two-sided sheet has the floor plan of a construction shack on one side and a map on the other.(Slides 17 & 18)

• Print and separate the Cabinet Contents lists (Slide 21); only teams that figure out how to open the cabinet are entitled to access the items inside.

• Load and open the PowerPoint slide show presentation

• Review the Simulation Operator's Notes (see attachment here) and your guide to the large-scale map (Slide 20) – they will help you in evaluating student progress in the "adventure" part of the simulation.

• Decide how you will assign students to teams.

Timing/Pacing

The lesson can be conducted in one or two 55-minute class periods (or a two-hour block), depending on the pace you believe your students can handle. If you expand the number of teams or turns in the simulation, or conduct a more thorough debrief, the lesson can easily extend to a third 55-minute periods or into the beginning of a second 2-hour block.

This is one of the basic, introductory concepts in economics, so it should be presented early in an economics course. I like to use this after we have been working the discussions and questions on basics like economic reasoning and scarcity, as the simulation makes for a nice break from text-work.

Stage One – Introduction and Lesson

1. The bellringer question I began with centered around the "benefits of society" by asking students who receives those benefits in our society and how that is determined. (**Note:** since my students had recently completed the U.S. Government & Politics semester, much of the initial discussion was policy-oriented, but it made for a nice crossover reference.) After some constructive discussion, I steered students toward the three key economic questions (What will be produced? How will it be produced? How will it be distributed?) and noted that the bellringer had centered around the third question. Tell the students that today's lesson will help them conceptualize those three basic questions. I had given the students an earlier "pre-test" so I did

not have to do that part this day; however, it could be done prior to steering the discussion toward the three questions.

2. Show the PowerPoint presentation through Slide 12, which will introduce the simulation to students. Please note that the presentation is rather dramatic and is intended for older students. If you have sensitive students in your class, you may want to adjust the presentation accordingly.

3. After showing the presentation divide the students into teams and give each team one map form, then go through the instructions on Slides 13-16 with them. Teams should be no larger than 5-6 students; remember that the more teams you have the longer it will take to review their progress for each turn. Give teams 10-15 minutes to come up with their first set of actions, allowing a longer time if you are allowing them to ask you questions about their actions. Leaving Slide 17 projected on the board will give students another point of reference for using their map. **Note:** allowing questions will be a helpful device for you; students tend to want to do things like "I tore open the cabinet with my bare hands and found a machine gun I can use to mow down the zombies." Letting them ask you "if" questions saves you from saying "No, you didn't" a lot.

Note about differentiated instruction – accommodation for different student learning types:

This lesson is more graphics-based than a normal lesson, and employs more cooperative learning and manipulatives. All are sound strategies for differentiation whether on the basis of learning styles or ability to master English for students in the English Language Learner/English for Speakers of Other Languages program. Consider assigning English Language Learners together on a team with a bilingual student who can assist them both in understanding the game/lesson and translating for the team during game play.

<u>Stage Two – Simulation</u>

1. After students have worked through the first series of tasks, meet briefly with each group and advise them of their results. Often the best way is to call up each group individually and make notes on its progress sheet. If the team has successfully opened the cabinet you can give them the inventory sheet (which will increase their resources for the next turn, but I'm getting ahead of myself). Working this way also enables you to keep each team's progress private, avoiding giving undue clues to other teams.

2. It is possible that some team members will "die" during the lesson. You should have a separate area of the room for them to go to when this happens (since they cannot stay and help the rest of the team).

3. Each subsequent turn should take about ten minutes, and you can run the simulation for as many turns as you feel comfortable with.

4. If you have teams that advance to the "exploration" part of the simulation, tell them to turn their form over to the map side and use a pencil to create a 3 X 3 grid of evenly sized boxes, with the shed in the bottom center box and the front fence running along the bottom of the bottom row of boxes. When I ran the simulation, I had team members only able to move to one adjacent square per turn, though you can adjust this based on your own time constraints. The bold-faced numbers on your copy of the map shows where the roaming zombies are for each turn, beginning with the first turn. As you can see, the pattern repeats after the third turn. Keep the location of the zombies in mind along with the items in the Operator's notes on how to assess zombie damage.

5. You can see the location of buildings on the lot and what helpful items might be hidden inside, but your students cannot until they go there and sufficiently explore. Don't give away any secrets!

Stage Three – Debrief

1. After you bring the simulation to a stop, there will be a natural impulse from the students to talk about the video-game-like elements of the sim. While you can allow a little of this, you want to steer them toward a discussion of the economics involved.

2. Using the questions on page 16 of the Capstone lesson (beginning with #9) you can lead the students through a discussion of their decisions and the concepts of scarcity, opportunity costs, rationality, and their responses to the three questions. Note that for this exercise trade-offs involve the possibility of using something in a way that would make it unsuitable for another purpose (e.g., cutting open a black plastic bag to work as a blackout curtain means you can't use it to carry scavenged materials).

3. At the end of the slide show I have given you several possible follow-up questions to pose to your students, which would also work well as post-assessment questions. The questions are written at different levels and for different levels of economic knowledge, so you can pick and choose the ones that will work best with your students.

Assessment

You can utilize a variety of assessments within this lesson, including:

- Student completion of/performance on a pre-assessment.
- Student completion of/performance on a post-assessment.
- Successful completion of initial simulation tasks.
- Constructive participation in class discussion.

In many of my classes I ran the debrief as a Socratic session, which helps keep students involved and on their toes (they never know who I'm calling on so they all need to be alert).

Interestingly, a few students in the simulation chose to sacrifice themselves; they would either volunteer for very dangerous actions or simply offer themselves to zombies as a distraction while the others either fled to safety or ganged up on the zombie while it was distracted. I made it a point to talk to these students after the lesson. Some told me that they lacked survival skills and felt they could not contribute to the team's effort, or that they feared they would be a burden to their teammates. They appeared to have a rational basis for making that choice rather than being disinterested and sitting out. After speaking with them, they each agreed that such an action is much easier to take in a simulation than it would be in a real-world situation.

Al the students appeared to be absorbed in the activity. While a few did express some "puzzle frustration" during the lesson, after the conclusion of the debrief all students expressed a desire to re-visit the activity with the hopes of attaining a different outcome.

Bibliography

- *Voluntary National Content Standards in Economics*, Council for Economic Education, ISBN 978-1-561-83-733-5
- *Connecting the Pieces: Building a Better Economics Lesson*, National Council on Economic Education, ISBN 1-561-83-498-X
- *Capstone: Exemplary Lessons for High School Economics – Teacher's Guide*, National Council on Economic Education, ISBN: 1-56183-515-3

[All of the above sources are available as part of CEE's Virtual Economics collection.]

FEAR THE SCARCE RESOURCES – Simulation Operator's Notes

If the team members miss their first deadline, then a zombie crashes through the roof before they can finish what they're doing.

Shack is 10' x 12' with a 12-foot high ceiling. Door is standard 8 ft. high. Windows are 4' x 4'.

One window can be completely covered with 5 planks; door can be barricaded with 11 planks. To hold, boards must have a nail driven in each corner and two nails along each edge, equally spaced. Teams could also attach brackets to door frame to hold 1-3 boards as a door bar (requires slight bending of brackets) to hold boards

Cabinet is too heavy to move, but desk will make a good barricade

Desk drawers are empty.

Leaving the ladder in place will allow a zombie to climb to the roof and crash through into the shed.

Hammering at the padlock will attract attention, and won't break the lock; using the claw (or a pry bar) on the hasp will break it open with a minimum of zombie-attracting noise.

Windows are single-hung, unbroken, and lockable.

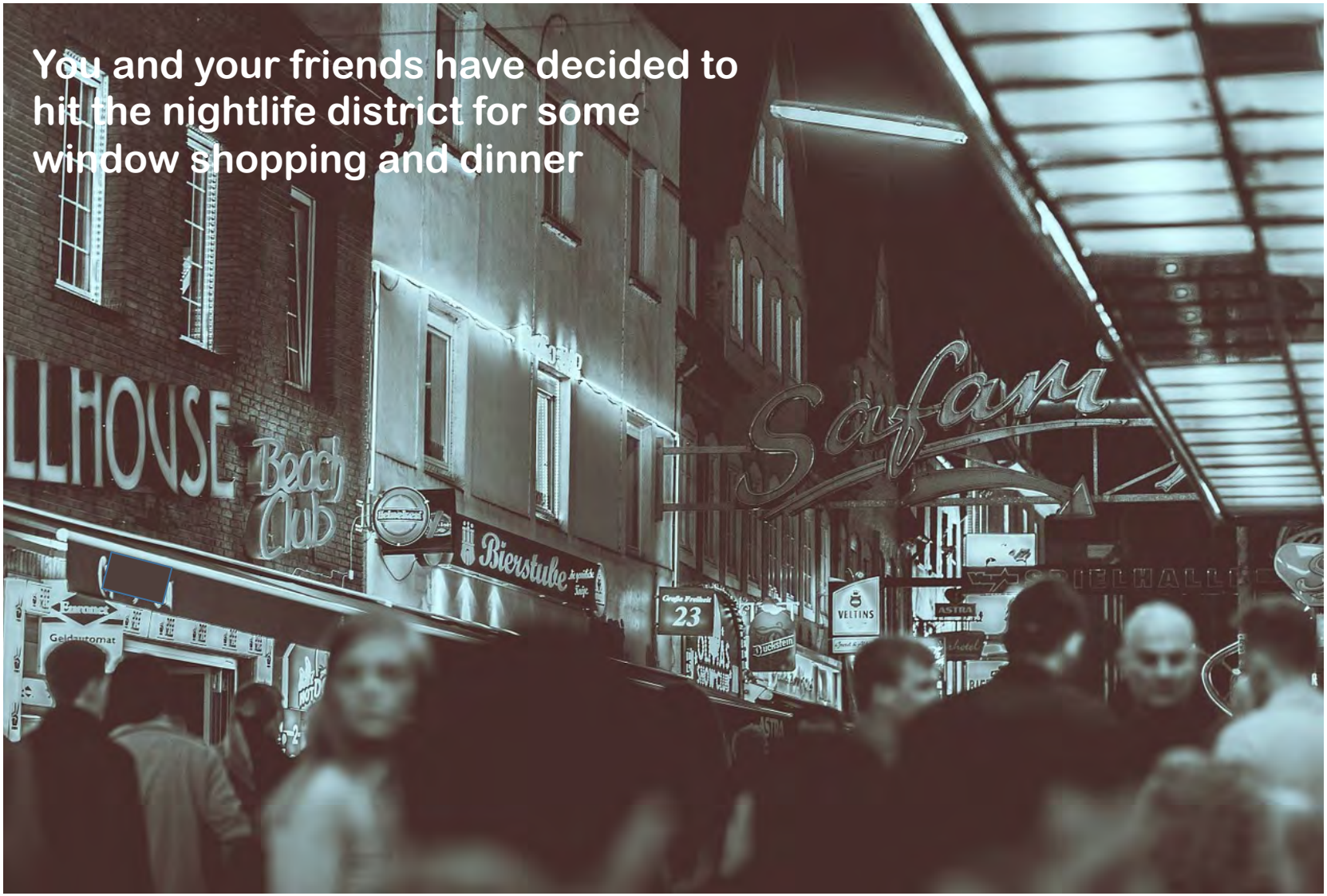
If a single person goes into a zone that is safe, they can come back safely. If a single person goes into a zone containing zombies, they do not return (and the zombie forces may become stronger). Anything they were carrying with them is lost. If two or more go into a zombie zone without a weapon, only one comes back & half the resources they were carrying are lost (round up the losses). Two with one weapon, both may return, but injury is possible.

"Dead" team members who are not disposed of or otherwise given a deep brain trauma will come back as zombies at the start of the second turn after their demise, and do appropriate damage to their former teammates.

The construction fence only covers the street exposure and the two sides of the lot; a low retaining wall separates the cleared lot from a wooded area.

BTW, if you could squeeze through the gate, a zombie definitely will.

Cell phone call attempts yield a "fast busy" as the local cell tower is overloaded.


You and your friends have decided to hit the nightlife district for some window shopping and dinner
LLHOUSE
Beach Club
Safari
Bierstube
23
VELTINS
ASTRA
Geldautomat


You’re having such a great time you don’t even notice the emergency vehicles that have been racing down the street every few minutes


You continue laughing and joking as you make your way back to where you parked
You begin to see flashing lights in the distance

And as you get closer, the evening begins to take on a more somber tone

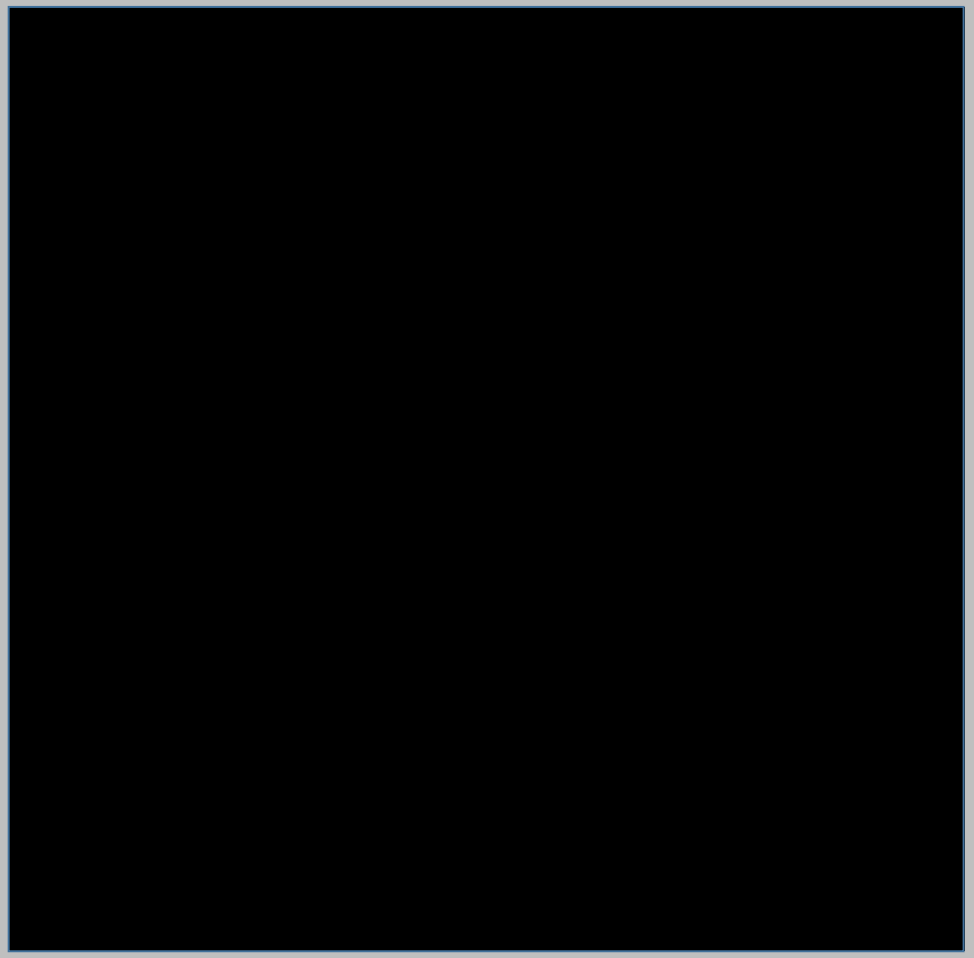
The accident is a serious one. Several police cars and emergency vehicles are on the scene. As you move down the sidewalk you think you see several yellow raincoats on the pavement. Then you realize they are tarp sheets; the unmistakable sign of accident victims that will not make it home this evening.

As two of the attendants lean down to grasp either end of one sheet to lift the body onto a waiting gurney, you see an unexpected movement. You think “Oh no, they’re going to drop him,” and you turn away.

Until a strange sound makes you look back

Incredibly, it looks as if the victim has reached up from under the tarp to grasp the attendant's neck and pull him down. What you see next is too horrible for words.

Another sound gets your attention. The cop urging people to keep moving screams as something grabs at his leg, and pulls him toward a second tarp.



One of your friends yells out “C’mon, this way! NOW!” He take off down a side street, and since he drove, the rest of you follow. You hope he’s working his way back toward the car, as you don’t really want to be around here anymore.

As you run, you pass by a small, community church . . .

. . . with a small, neighborhood graveyard . . .

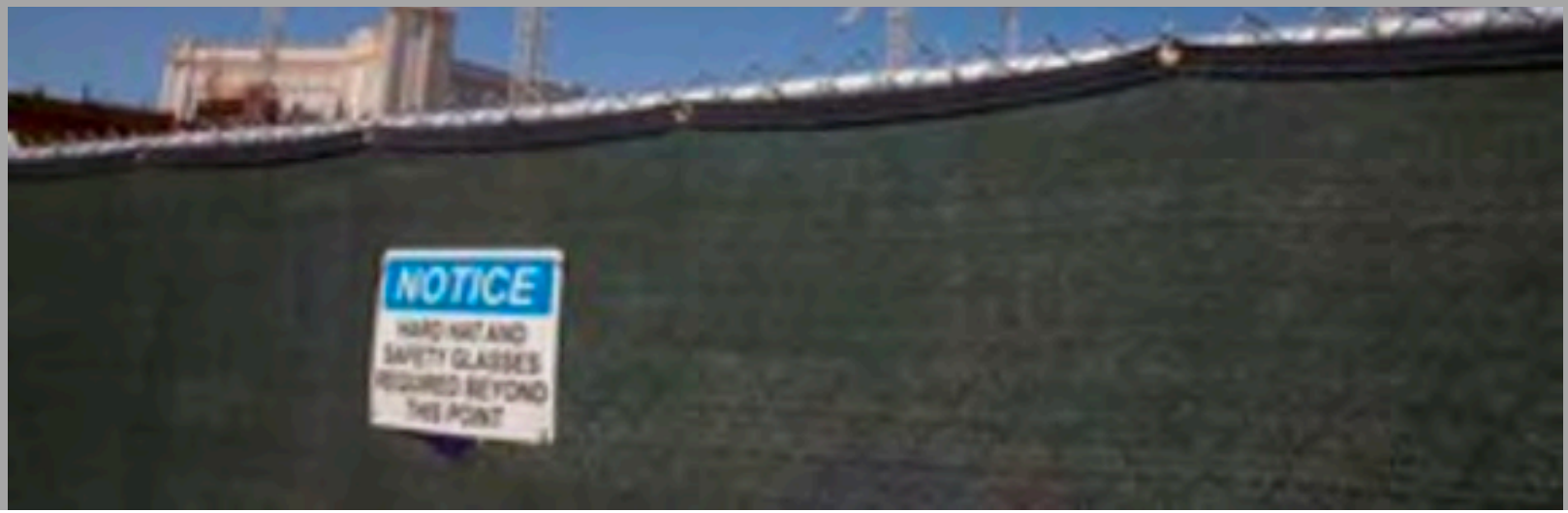
. . . with small, family headstones . . .

. . . that have started moving!

If you weren't running scared before, you are now!

After a little while you come upon a construction site with a fence that could keep you all hidden, if you could get in.

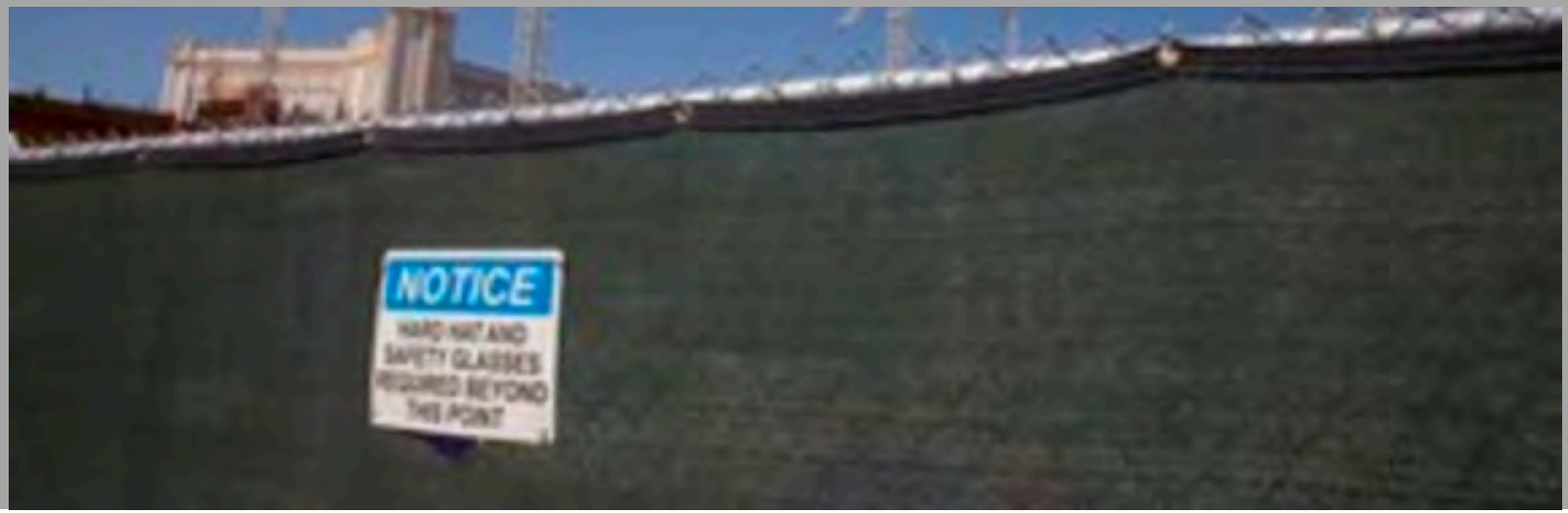
There's a gate, locked with a chain, but it has enough give that your group can all squeeze through. You dash for the first structure you see in the fading light, a construction shed.



It's locked! But your driver gives the door a swift kick, breaking the door jamb that held the deadbolt. The door swings open and you all dash inside.

Frazzled and out of breath, you start looking around the inside of the shed, and then at each other. The looks on your friends' faces remove any doubt you may have had. . .

. . . this is the zombie apocalypse.




FEAR THE
SCARCE
RESOURCES

Start by printing (legibly) the names of each of your teammates along the top of your diagram.

Examine the diagram and decide what you are going to do during the time period I have specified.

On a separate sheet of paper, write down (legibly!) what each member of your team will do, how, and with what (kind of like the game *Clue*: Col. Mustard in the Conservatory with the Candlestick):

Be detailed and specific!

For example: John goes to the vending machine, puts 4 quarters in the slot, and buys a pint of motor oil. He brings the can back. Harry uses the hammer & nail to punch two holes in the top – one to pour and one to vent. We roll up a magazine to use as a funnel and we pour the oil into the engine crankcase.

Start by printing (legibly) the names of each of your teammates along the top of your diagram.

Examine the diagram and decide what you are going to do during the time period I have specified.

On a separate sheet of paper, write down (legibly!) what each member of your team will do, how, and with what (kind of like the game *Clue*: Col. Mustard in the Conservatory with the Candlestick):

Be detailed and specific!

Put these actions all together on your sheet. For the next time period, put the new actions all together in a section below the prior one (so they can be read sequentially).

Start by printing (legibly) the names of each of your teammates along the top of your diagram.

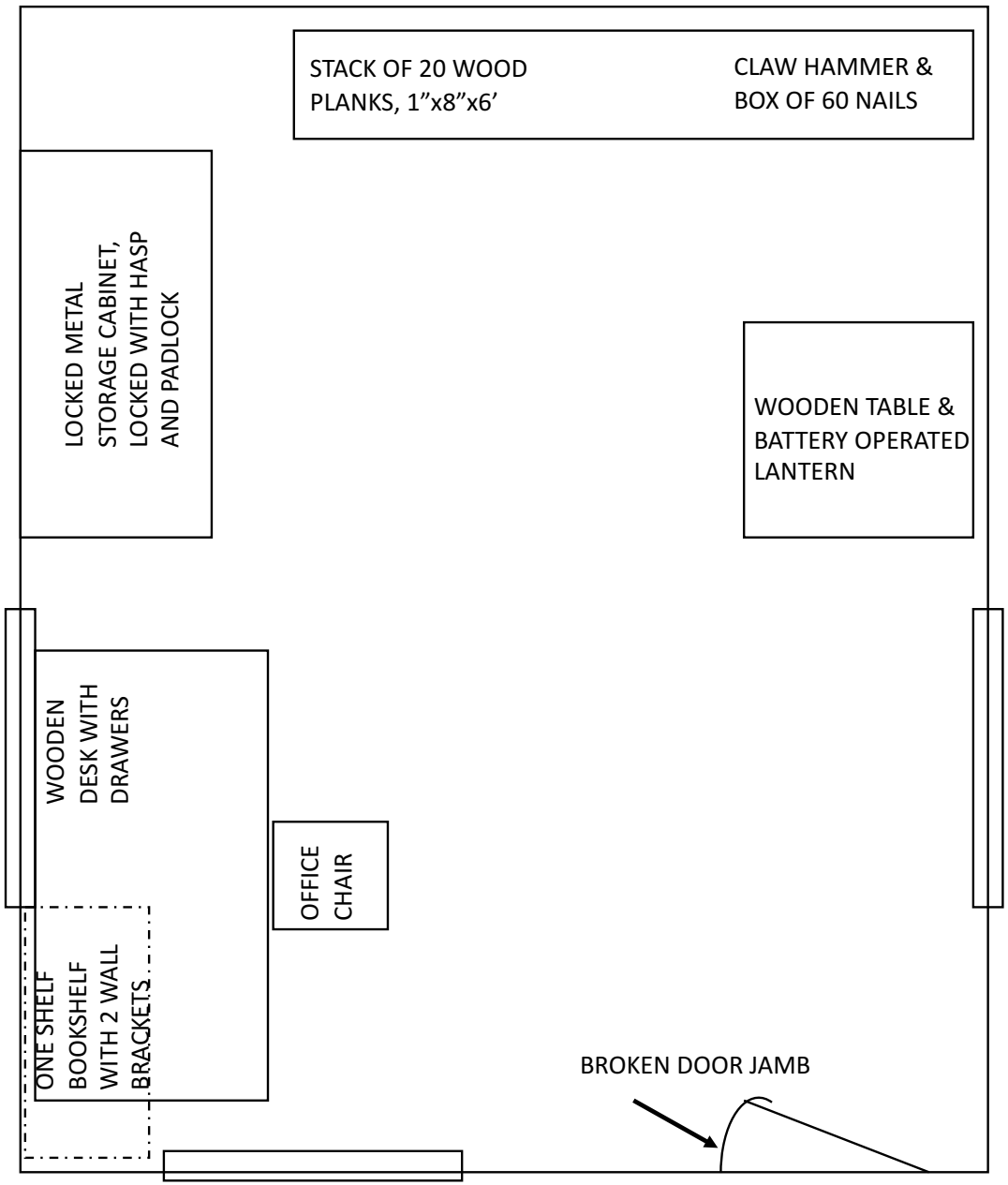
Examine the diagram and decide what you are going to do during the time period I have specified.

On a separate sheet of paper, write down (legibly!) what each member of your team will do, how, and with what (kind of like the game *Clue*: Col. Mustard in the Conservatory with the Candlestick):

Be detailed and specific!

When I call your team up, have *one* member bring *both* sheets of paper to me so I can evaluate your actions. Be quick – missing a deadline is like doing nothing, and could ruin your whole day!

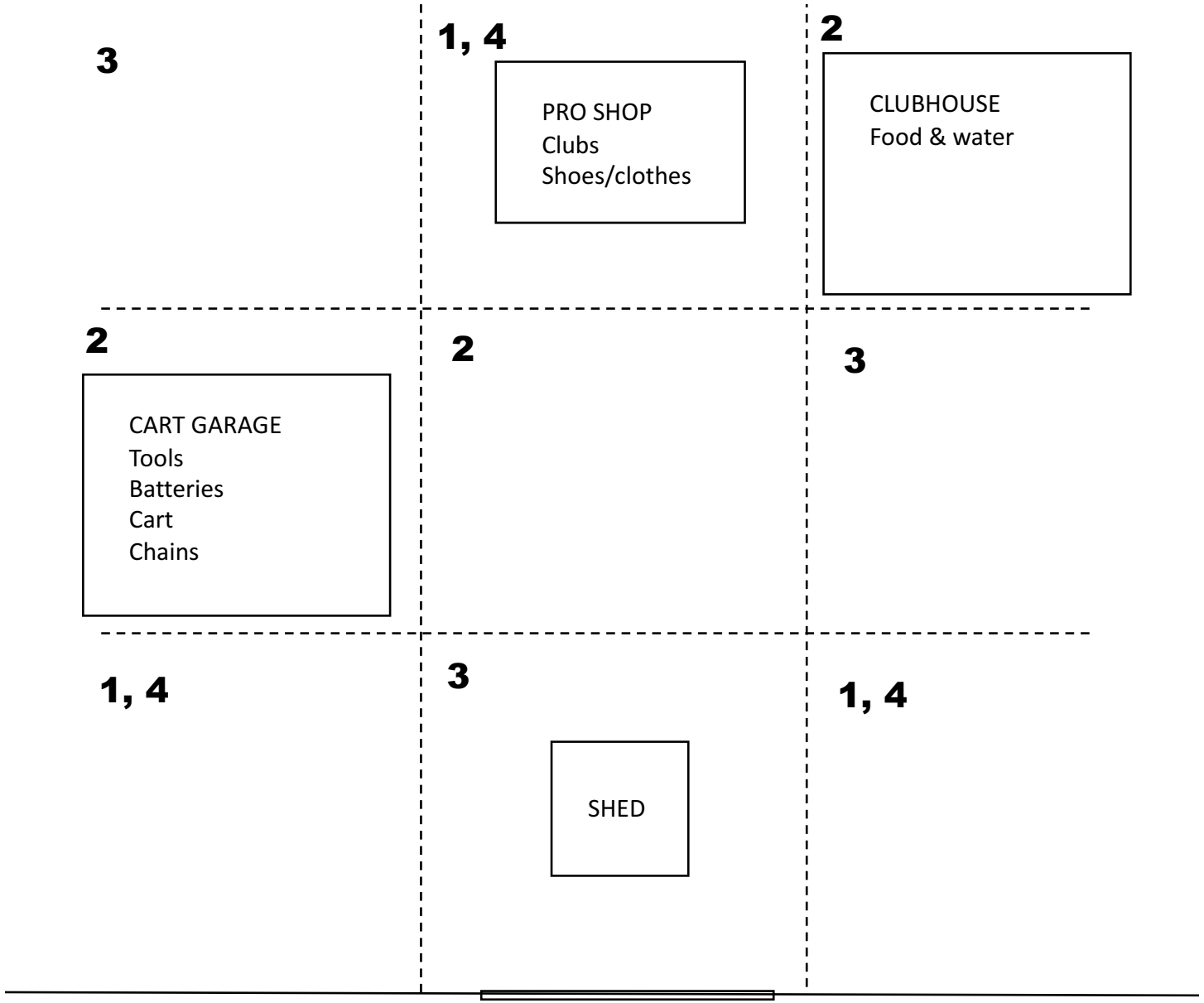
No sharing with other teams . . . you're on your own!



EXTENSION LADDER PROPPED AGAINST BACK OF SHED

ROOF HAS THREE LOOSE BOARDS LEAVING GAPS IN CENTER

SHED


3
1, 4
PRO SHOP
Clubs
Shoes/clothes
2
CLUBHOUSE
Food & water
2
CART GARAGE
Tools
Batteries
Cart
Chains
2
3
1, 4
3
SHED
1, 4

CABINET CONTENTS
1 flashlight
Spare set of 3 “D” cells
1 box of nails
1 rip-cut hand saw
1 spool of ¼” rope
5 black plastic trash bags
1 first aid kit (gauze, iodine, ointment, 5 Band-Aids, 3 doses of aspirin)

CABINET CONTENTS
1 flashlight
Spare set of 3 “D” cells
1 box of nails
1 rip-cut hand saw
1 spool of ¼” rope
5 black plastic trash bags
1 first aid kit (gauze, iodine, ointment, 5 Band-Aids, 3 doses of aspirin)

CABINET CONTENTS
1 flashlight
Spare set of 3 “D” cells
1 box of nails
1 rip-cut hand saw
1 spool of ¼” rope
5 black plastic trash bags
1 first aid kit (gauze, iodine, ointment, 5 Band-Aids, 3 doses of aspirin)

CABINET CONTENTS
1 flashlight
Spare set of 3 “D” cells
1 box of nails
1 rip-cut hand saw
1 spool of ¼” rope
5 black plastic trash bags
1 first aid kit (gauze, iodine, ointment, 5 Band-Aids, 3 doses of aspirin)

CABINET CONTENTS
1 flashlight
Spare set of 3 “D” cells
1 box of nails
1 rip-cut hand saw
1 spool of ¼” rope
5 black plastic trash bags
1 first aid kit (gauze, iodine, ointment, 5 Band-Aids, 3 doses of aspirin)

CABINET CONTENTS
1 flashlight
Spare set of 3 “D” cells
1 box of nails
1 rip-cut hand saw
1 spool of ¼” rope
5 black plastic trash bags
1 first aid kit (gauze, iodine, ointment, 5 Band-Aids, 3 doses of aspirin)

THE EDUCATION FUND
FOR EXCELLENCE IN MIAMI-DADE PUBLIC SCHOOLS

Apply for an Ideas with IMPACT Adapter Grant!

All Miami-Dade County public school teachers, media specialists, counselors or assistant principals may request funds to implement any project idea, teaching strategy or project from the 2017 Idea EXPO workshops and/or curriculum ideas profiled annually in the ***Ideas with IMPACT*** catalogs from 1990 to the current year, 2017-18. Most catalogs can be viewed on The Education Fund's website at educationfund.org under the heading, "Publications."

- Open to all K-12 M-DCPS teachers, counselors, media specialists
- Quick and easy reporting requirements
- Grants range from $150 - $400
- Grant recipients recognized at an Awards Reception

To apply, you must contact the teacher who developed the idea before submitting your application. Contact can be made by attending a workshop given by the disseminator, communicating via email or telephone, by visiting the disseminator in their classroom, or by having the disseminator visit your classroom.

Project funds are to be spent within the current school year or an extension may be requested. An expense report with receipts is required by Friday, June 1, 2018.

APPLICATION DEADLINE: December 13, 2017

Apply online at educationfund.org

For more information, contact:
Edwina Lau, Program Director
305.558.4544, ext. 113
elau@educationfund.org

THE EDUCATION FUND
FOR EXCELLENCE IN MIAMI-DADE PUBLIC SCHOOLS

Contributors with IMPACT

Platinum Star

School District Education Foundation Matching Grant Program

Gold Star

TD Bank
America's Most Convenient Bank®

Ford Motor Company Fund

Humana Foundation

MBF Miami Bayside Foundation

ASSURANT®

Learning A-Z

P L Dodge Foundation

FPL

Silver Star

TriMix Foundation

PEREZ TRADING COMPANY

Rod and Lucy Petrey

Raj Rawal and Anne Marie Miller

Robert Russell Memorial Foundation

Bronze Star

The Jack Chester Foundation

PNB

FORD MOTOR COMPANY FUND

Driving a **Brighter Future**

For more than 65 years, Ford Motor Company Fund has worked to improve people's lives, investing $1.5 billion to support innovative programs in Community Life, Education, Safe Driving and the Ford Volunteer Corps.

For opening minds, creating opportunities, and helping to create a brighter future, Ford Salutes The Education Fund.

www.community.ford.com · @fordfund_ · @ford