

Survivor Mathematics: **Out-spend, Out-balance, Out-bargain**

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Activity 1: Sim City

Real Life Skills: Rent, mortgage, bills, wage, taxes

Materials:

- Play money (\$1s, \$5s, \$10s, \$20s, and \$100s) (look in Dollar General stores)
- Worksheets, with answer keys: here is a good site with free printable math worksheets (<http://www.homeschoolmath.net/worksheets/>) (vary the difficulty)
- Small luxury prizes (candy, drinks)
- Dice, coins
- Investment stocks
- Desk and chair for each student
- Post notes and pen

Time: 1 ½ to 2 hours

Procedure:

- Give students money to start out. Suggestion: give students the same amount of money as their current grade point average in your class to show that the world isn't fair!
- Every 20 minutes, students must pay \$20 rent. If students cannot pay rent, they lose their desk, chair, shoes, or anything else you can repossess! There is also a fine as well.
- To earn money, kids can "go to work." The work should be a worksheet that can be graded quickly (ie. Math sheet). If successfully completed, they earn between \$20-\$40, depending on difficulty. Students can do as much work as they wish.
- Students can also "go to college." To go to college, students should have a **challenging** worksheet to complete. If they complete the sheet successfully, they will get a college

certificate. College tuition is \$40, but after graduating, you earn \$75. If they then complete work afterwards, they can get a pay stipend for their work (additional \$20).

- Students can invest money if they start earning enough. To prepare, have two stock options, a conservative and risky. If students invest, hold their money with a post-it note attached with their name on it. Every 30 or so minutes, you can have a stock market update. To see if the stock goes up or down, you need the coin and dice. The coin will tell you if the stock goes up or down and the die tells you by how much. First, flip the coin for the conservative stock. If it is heads up, the stock goes up, tails the stock goes down. The die is then rolled. Whatever number appears tells how much the stock goes up or down. For example, if the coin lands heads and the die lands on 5, the stock would go up 5 points, so a student who invested \$10 would now have \$15. Do the same for the risky stock, but when you roll the die, it is double whatever appears on the die. For example, a coin lands on tails and the die lands on 4, so the stock would go down 8 points, so a student who invested \$10 would now be down to \$2. A student can invest or pull out of a stock during open market periods (whenever you decide).
- You can consider collecting taxes periodically for income tax, housing taxes, etc.
- Luxury items are also up for sale. You can fluctuate the price if you like or set the prices early on, but either way, make it so students who are buying these realize how quickly luxury can waste away your money. This is a good supply and demand lesson.
- Be sure to charge \$1 every time a child comes to the desk to either get a “work” paper, “college” paper, pay rent, or anything else, otherwise they will be at your desk every 5 minutes for something. Charging money will deter them from asking too many things. You can explain it as “gas money” they are spending.

Note: This game is really about problem solving and managing your life. You do not want to keep answering questions. Let the students problem solve and figure out solutions on their own after you have explained directions.

Note: If you have a second person to assist you with this game, they can help with the grading of the “work” and “college” papers more quickly.

Activity 2: Holiday Shopping

Real Life Skills: Balancing & Budgeting, Buying & Selling, Tax, Discounts

Materials:

- Catalog
- Calculator (optional)
- Budgeting spreadsheet

Time: 45-60 minutes

Let's go shopping! In this activity, students have fun doing what they like to do best- BUY TOYS!

Students are arranged in groups of 2 or 3 for this activity. Each group receives the balance worksheet and a toy catalog. You can obtain free catalogs from any toy store or download an electronic version. Make sure that all groups receive the same catalog.

Each group has a spending account of \$1000. They decide what they are going to buy from the catalog and document it on the worksheet. If they buy more than one of a certain item, they must multiply the cost accordingly.

The group that obtains the closest amount to \$1000 wins!

As the teacher, you can differentiate and decide how far you want to take the calculations. For example, you can have the students apply your states sales tax for each item.

As this activity is meant to have students practice adding, subtracting, multiplying, and dividing decimals, it is not encouraged to have the students use calculators.

As the teacher, you can also change the way the challenge is presented and have different rounds. Here are some suggestions:

- (1) The group that can buy the least number of items to reach \$1000 wins
- (2) Round each item you buy to the nearest dollar. The group that makes exactly \$1000 wins
- (3) The group closest to \$1000 with only buying one of each item wins

To get into the spirit of the activity, you can decorate your classroom with holiday items, play holiday music, or wear a costume.

Activity 3: Mall Math Marathon (M³)

Real Life Skills: Best Deals, Tax, Tips, Problem Solving

Materials:

- Calculator (one per group)
- Mall Math Marathon Packet
- A location to do the activity
- Chaperones (one per group)

Time: 2 hours

Procedure:

- Locate a place of business (mall, strip mall, department store, WalMart, etc.) willing to host your math marathon, checking that they understand that students will be using their store(s) to solve real world math problems.
- Ensure the management that they will be chaperoned and will not be touching anything.
- Once the location is established, determine a series of math challenges using products and services that can be solved in the store.
- Strategically create groups of two or three students. Assign each group a chaperone, ensuring the adult's child is not in his or her group. You don't want the temptation for the parent to help.
- Once groups are at the location, give each group two to three starter problems that are done sitting down. This will stagger the start times of the groups, giving a sense of urgency to get started. Once the group has solved the starter questions correctly, they receive the marathon packet, which has a series of challenges to solve.
- The packet should have a series of challenges, ranging in difficulty, and varying in points. The goal is to earn as many points as possible in the time allotted.
- Allow approximately 90 minutes to complete the marathon.
- Be precise with the time and location that groups must return to. Assign a penalty for each minute late.
- Chaperones may not assist with any of the math.

Please see graphics below to get an understanding of the goals and missions of the Mall Math Marathon.

M CUBED

The Mall Math Marathon!



9 Point Missions

(B) Go to California Pizzeria. Create the cheapest gluten free meal that includes 2 items from "gluten free" and 1 item from "vegetarian". What are those two items and how much do they cost?

Answer:

What is the percent change of the gluten free meal cost to the non-gluten free meal cost? Is this a percent increase or percent decrease?

Answer:



Your Goal

Your team's goal is to complete as many missions successfully as you can in the time allotted.

As you travel around the mall, be sure to use strategy and teamwork!



(B) One store in the mall is always looking to one-up its rivalry competitor. They have 1000. Head to that store and find the cost of a Barbie #12 Black Tracks Cover with 66 gigabyte memory. What is the price of this item? What is the unit price per gigabyte (GIG)?

Answer (unit price only):

10.76

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M CUBED

The Mall Math Marathon!



10 Point Missions

(A) Go to Travel Ex. Instead you have \$2000. You want to buy something for 350 pounds. How much money in US dollars would you need?

Answer:

11,718.49



Math in the Mall

One calculator will be allotted per group, but all calculations must be shown on paper in order to receive credit.

**NO WORK,
NO CREDIT!**



7 Point Missions

(A) Go to Kids Foot Locker. Look for the first three pairs (red, red, green, and black long-sleeve shirts). Add the regular wear-out jackets that are on sale for \$44.99. They are located in the back left back side of the store. Determine the fractions representation of each shoes color of socks. Put the fractions in order from least to greatest.

Answers: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$

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