

things of geometry. Other activities and discussion points could be devised to illustrate these notions equally well.

As a final note, I would like to make a paradoxical plea that we recognize the possibility that teaching the no-things of geometry may be the most important thing that we can do in geometry.

#### Reference

Walter, M.I. *Boxes, Squares, and Other Things*. National Council of Teachers of Mathematics, 1970.

## **In the Red—An Integers Game for Junior Secondary**

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“In the Red” is a game that was devised to introduce and review the concepts of integers. It deals, of course, with one thing all students are familiar with—the gain and loss (emphasis on loss) of money. The game is set up so most students will end up in the “red” in their accounts.

When developing or reviewing integers, teachers can use this game because students are required to total (or sum), split (divide), and multiply (gains and losses). This knowledge can then be transferred to integer work.

#### Rules

1. Use groups of three or four (or 1,000?)
2. Each student must keep track of other group members' scores to guard against cheating (emphasize the cheating so that they do, in fact, keep track).
3. Decide which player will start—highest toss of die.
4. Each player in turn picks up a card from the face-down deck and follows the instructions. Scores are recorded with each student's turn, since the whole group is sometimes affected by the instructions.
5. A time limit (20-25 minutes—but quite variable) should be suggested to end the game.

Obviously, the game is very simple, but this contributes to its popularity. No special skill or knowledge is needed to play, and the game can be fiercely competitive (especially as your better students are dropping further into the hole.) Be prepared for some noise—the ecstasy of gain and the agony of loss.

#### Equipment

- One die per group.
- One set of game cards per group.
- One scoresheet for each student.

Scoresheets can be organized in any numbers of ways. Two are illustrated:

Transaction	Balance		Gains	Losses	Balance
\$ 650	\$ 650		\$650		\$ 650
-\$1500	-\$ 850	or		+\$500	-\$ 850
-\$ 300	-\$1150			\$300	-\$1150

This uses more negative signs. Students could also keep track of the nature of transactions.

### Sample cards

The following are some of the card transactions I have used. Many are outdated (but generate discussion). Feel free to use them and make up your own to suit your students' interests. The trick is to come up with a variety of ways of losing (mainly) money so the transactions don't become too repetitive. A sheet of cards can be made up in 15 or 20 minutes. (Use classes and friends for a variety of ideas.)

**Note.** Remind students before they play that having fun—smiling—should not be done in school and is strictly forbidden.

<b>PAYDAY!</b> Deposit \$250.	<b>OOPS!</b> Color TV needs repair. Withdraw \$150.
<b>OOPS!</b> Wrecked bike. Write a cheque for \$125 for a new one.	<b>INVEST!</b> Buy an antique oak table and chairs for only \$625.
<b>SPLURGE!</b> Buy a new stereo component system for \$1100.	<b>PAYDAY!</b> Sold the most chocolate bars and won \$100.
<b>OOPS!</b> Your first car accident. Deduct \$50.	<b>RACES!</b> Your group bet \$60 and came in last. Split the losses.
<b>INFLATION!</b> You own a car and spend \$25 each week on gas. Roll die to see how many weeks.	<b>INVEST!</b> Invest in a jeans-and-tops shop. Borrow \$1,200, which your partners will share with you.
<b>PAY OFF!</b> Your investment pays off. \$1,000 times roll of die.	<b>SLUMP!</b> One of your trucks doesn't have any work. It loses \$50 a day. Roll the die to see how many days.
<b>WINNERS!</b> Your hockey team is winning games. You make \$150 for each game. Roll die to see how many games.	<b>KAPUT!</b> You are a florist, and your flowers are wilting. Roll die and multiply by \$50 to see how much you lose.
? Donate \$300 to the Munroe Outdoor Education Fund.	<b>LOTTERY!</b> You win \$75 times roll of die, but share it with your playing partners.
<b>CRASH!</b> Business goes bankrupt. \$150 times roll of die, but divide it with partners.	<b>INVEST?</b> Your gold mine lacks only one thing—gold! Split the loss of \$210 times die roll with your partners.