

STUDENT'S WORLD

Geometry Projects Connected to the Student's World



Mark Howard

CREDITS

Author:

Mark Howard

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Director of Design and Production: Jessica Holland
Assistant Designers: Stephanie Renaud, Sabrina Mola
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INTRODUCTION

Meaning increases learning. A high school student is more motivated to design a car rim than to calculate the wing surface area of the Red Crested, Venezuelan humming bird. When we enroll in adult education courses it's because it has meaning in our lives. We may want to learn how to paint because it relaxes us or to learn how to email so we can stay close with friends and family.

This book is a collection of twenty hands-on Geometry projects where the focus has been sharpened from the real world down to the student's world. Things they're into like cars, relationships, shopping, etc. These projects come from their lives. This motivates them, their creativity excites them and the math concepts are a tool to display themselves and their creativity.

Because these projects cut across a wide spectrum of topics they stimulate thinking outside of mathematics. Some projects prompt the students to think about who they are, their future, their family while other activities connect with history, art, science, writing and the business world.

We know that motivating students is tough. These projects can open student's eyes to the connection between math and their lives and that can be a motivating force.

Let's face it; math can be as dry as a thousand year old piece of toast. How creative can you be bisecting an angle? When students are allowed to be creative we as math teachers can see another part of them and who they are. This also gives us as a chance to encourage their creative gift.

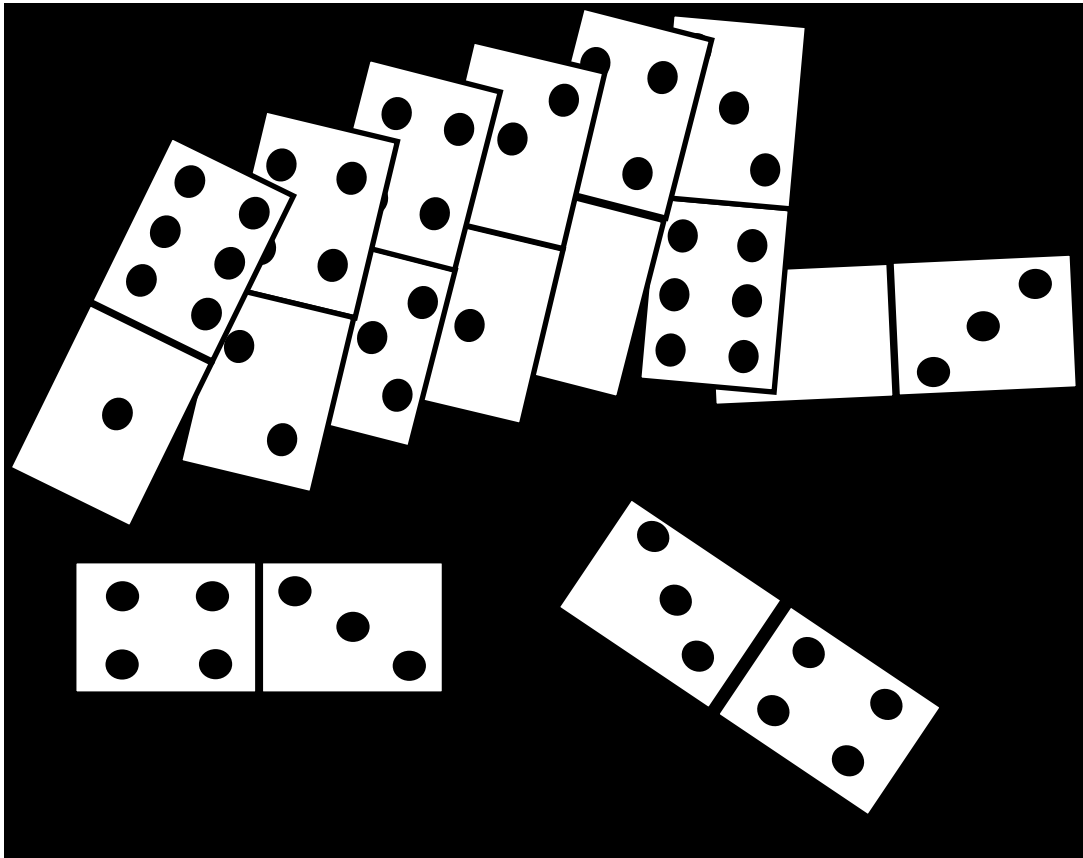
Not only is this creativity great for us, but the students see it in each other too when the projects are shared. Some of the projects involve some friendly competition. By combining their creativity and competition, a classroom can really be energized.

Most of all, these projects are meant to be fun. They're the icing on the chapter. Complete the projects along with the students and share a little bit of who you are. Take these projects in any direction you want, customize them, expand them or develop your own projects so you can be creative and add some spark in the classroom.

1

PRACTICING PROOFS

the *Domino* Effect



1

PRACTICING PROOFS

NCTM – Reasoning and Proof Standard

Introduction

Statement

Humpty Dumpty sat on a wall
Humpty Dumpty had a great fall
All the kings' horses and all the kings' men
Couldn't put Humpty Dumpty back
together again

Reason

Given
Pushed by a vegan
Given
No Vocational Ed. programs
at castle



Preparation

This project can be completed prior to writing proofs to establish a good understanding of the process of writing a two-column direct proof.

Objective

The students take an event from their lives and write it as a proof, linking the events into a two-column format.



Directions

Part One

1. Have the students recall a memorable event, either positive or negative, in their lives. Remind them that they will be sharing these stories with the class and that they should be as interesting and engaging as possible.
2. The event must consist of at least four occurrences that had a domino effect leading to the final outcome.
3. The students will then commit to that event by writing their name and the event on a sign up sheet.

Part Two

1. The event will be broken down into a two-column proof. The proof should have a title and two columns labeled “statement” and “reason.”
2. The statement column is for the occurrence and the reason column is why or how it happened. For example: Statement – Our swim team won the league championship, Reason – We beat Western High forty-six to twenty-nine. Be sure to emphasize that the occurrences must be linked.
3. Share the student’s work by having them read their proofs to the class.

Assessment considerations

- The project should have a complete title and each column should be labeled “statement” and “reason.”
- There should be at least four steps and each should be linked to the next with short, clear reasons.

Extensions

1. Have the students convert their proof into paragraph form or have them display it as a flow chart.
2. The students can write a new proof linking the steps it takes to get their first drivers license or all the steps necessary to attend college.
3. As a classroom discussion, ask the class when have they played a part in another person’s good or bad event. In terms of this project, when were they a line in another proof? Did they ever start a chain reaction in other people’s lives for example.
4. As a research project, have the students find out how logic is used by doctors and lawyers. For example, when lawyers argue a case they use deductive reasoning by linking evidence in a chain of events to prove some one committed a crime.