# TEACHER'S GUIDE Arts and architecture





**Classroom Activity and Discussion Guide** 



By Tracy Edmunds, M.A. Ed. Reading With Pictures

# Art, Architecture, and Engineering

These student pages provide different challenges in drawing and rendering.

Create a Minecraft Self-Portrait, page 3, gives students tips on using the squares-only style of Minecraft to create a self-portrait.

Drawing for Engineering, page 4, gives students examples from the *Diary of an 8-Bit Warrior* books of a diagram, a floor plan, and a rendering, and provides grid paper for them to try their hand.



# **Create a Minecraft Self Portrait**

Use this Minecraft Self-Portrait page to draw yourself as you would appear in Minecraftia!

- 1. Count dots and lightly trace the center lines, both horizontal and vertical. Use the center lines to keep things symmetrical.
- 2. Start by sketching out the squares for your eyes, then other facial features, and work out to the outline of your face. Remember, there are no curves or circles in Minecraftia!
- 3. Once you have sketched in pencil, color and outline the squares.

Challenge: Using your diagram as a guide, use small squares of colored paper, sticky notes, building blocks, or even square crackers to make your self-portrait as a collage.

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# **Drawing for Engineering**

The *Diary of an 8-Bit Warrior* books feature diagrams, floor plans, and architectural renderings of buildings in the story.

• Diagram: a drawing that explains something by showing how the parts relate to each other; parts and items are usually labeled

### **STEVE'S BASE AND WITCH BRIDGE**

Floor plan: a drawing that shows the shape, size, and arrangement of a room or rooms as viewed from above



Draw a labeled diagram, floor plan, or rendering of something or someplace familiar to you. Or draw something you'd like to build in real life or in Minecraftia.



# Drawing in 2D and 3D

*Orthographic drawing* represents a three-dimensional object by showing several flat views in two dimensions.



*Isometric drawing* is used by illustrators, engineers, and architects to represent three-dimensional objects in two dimensions.



#### **PLAN DRAWINGS**

*Plan drawings* are used by engineers and architects to show how something is built or made. Using square blocks, you will build a simple Minecraftia-style building and do a plan drawing.

- 1. Build something small with square blocks. Start simple for this first try—just a few blocks will do. Remember, in Minecraftia the blocks always fit together on their flat faces. They are not angled to each other and there are no spaces between them.
- 2. On the grid paper below, draw an orthographic view of your building looking down from above. Just draw the blocks as squares. This is your *floor plan*.

3. Draw two orthographic views of your building looking at it from the front and from the side. Again, just draw the blocks as squares. These are your elevation drawings.

4. Now try drawing your building in 3D!



#### HOW TO DRAW AN ISOMETRIC BLOCK

Practice drawing an isometric block using an isometric dot grid.

- 1. Draw a vertical line connecting two dots.
- 2. Draw two diagonal lines connecting the top of your vertical line to two dots above and to the side. Your drawing should look like a wide letter Y.
- 3. Draw two vertical lines connecting the top dots of your figure to the dots directly below them.
- 4. Draw two diagonal lines connecting the bottom of your cube. It should now look like an open book.
- 5. Draw two diagonal lines connecting the top of the "book" pages to the dot above and between them. A block!

Practice drawing some isometric blocks. Can you add lines to make them look transparent (see-through)?





Now try drawing your simple block building on this isometric dot grid.

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# **Social and Emotional Learning**

The *Diary of an 8-Bit Warrior* series delves into social-emotional issues such as relationships, responsible decision-making, team building, leadership, and community. The topics and questions below can be used for small group or whole class discussion, or as writing prompts.

### **RELATIONSHIPS**

- "Life is other people, isn't it? If there was no one else in this village . . . if it was just me and a bunch of blocks . . . how boring would that life be? The thing that matters most is the people around me" (*Crafting Alliances*, p. 66). Do you agree with this point of view? Why or why not?
- Making friends: "They're teaching us all this stuff in school, like advanced crafting, redstone circuits . . . but they never teach us anything about how to make a friend" (*Crafting Alliances*, p. 66). If you were to teach someone how to make friends, what strategies would you teach them? What strategies have worked or not worked for you?
- Fake friends: "Many students are nice to Lola because they want something from her" (*Path of the Diamond*, p. 108–116). Is this ever OK? Why or why not? What do the characters say or think about this? How do you feel about it?
- "But I didn't believe it. Didn't want to. I wanted to be angry at Pebble. I know that's immature" (*Quest Mode*, p. 198). Have you ever wanted to be angry at someone? Why? What did you do about it? What strategies could someone use to work through anger in a healthy way?

### LEADERSHIP, RESPONSIBILITY, AND PRESSURE

- Runt ruminates on the pressure of responsibility: "Too much crazy stuff was happening to me at once. I'm only twelve, you know?" (*Diary of an 8-Bit Warrior*, p. 130–131). Have you ever felt the pressures of responsibility? Where or who does that pressure come from? Runt gives himself a pep talk: "I can't just freak out when faced with problems, right?" (*Diary of an 8-Bit Warrior*, p. 130). How do you handle pressure? What are some helpful coping strategies?
- Runt brings Lola into his team for her redstone talent, and then they find out she's terrible in combat. "I only saw her redstone talent, and I never considered the potential downside of letting her on my team. As soon as I agreed to be her friend, that was it. She became my responsibility, my problem" (*Path of the Diamond*, p. 169–171). Should Runt have invited Lola to join his team? Is a leader responsible for everyone in their team? Why or why not? How does personal responsibility figure in?
- During a battle, Runt saves his worst enemy (*Path of the Diamond*, p. 54). Is this a responsible thing to do? Is it good leadership? Why or why not?
- "But that seemed so quiet compared to the pounding in my chest. The more I watched them the more I felt this awful weight. It grew heavier with each smile directed my way. Only then did I begin to fully realize what this all meant, how high the bar was. The whole village was counting on me. When I glanced at Breeze, though, that feeling went away. *NO*, I thought, *they're not counting on me*... *They're counting on US*" (*Quest Mode*, p 15). How does having someone on your side or a team to work with help alleviate pressure?

# BULLYING

• Runt is bullied quite a bit throughout the first few books. At one point, he gains strength in a mining competition by imagining that he is swinging his pick at the face of his biggest bully (*Diary of an 8-Bit Warrior*, p.174). What strategies do Runt and his friends use to deal with bullies in these stories? How effective are these strategies? What would you do differently?

### ETHICS

Runt and his friends face a number of ethical dilemmas. Have students evaluate these and discuss or write about whether these actions are acceptable or not and why.

- In his potion brewing contest with Pebble, Runt admits that he cheated, and says, "But you know what? That guy deserved it" (*From Seeds to Swords*, p. 70).
- Runt's team signs on to Operation Snoop, in which "Razberry has been going around school and peeking at other kid's record books" (*Path of the Diamond,* p. 70).
- Some of the other teams steal ideas for tests (Path of the Diamond, p. 73).



# **Computer Science**

This offline activity will help students begin to think like computer programmers by creating a secret maze and an algorithm to solve it.

### Sticky Trap Maze

In the Tomb of the Forgotten King, Breeze and Runt encounter a sticky trap maze (Quest Mode, p. 164–169). The floor is covered in a grid of golden pressure plates—some of them are safe to step on, while others cause the ceiling to crash down! Breeze uses a fishing pole to test each plate and find the safe route through.

You can make your own sticky trap maze and use an algorithm to tell friends how to find their way through. An algorithm is a series of instructions.



Here is an example of a maze and the algorithm that tells how to safely go through it.

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#### NOW CREATE YOUR OWN MAZE AND ALGORITHM!

1. On the grid below, mark a **START** block and an **END** block. Mark your "safe" route from the **START** to **END** by putting an X on each pressure plate that is safe.

2. Create a set of symbols for your algorithm to guide someone safely through your maze. The symbols can be anything you want. Here are two examples:

#### **EXAMPLE 1**

- ↑ Move one forward
- Move one backward
- ➡ Move one left
- Move one right

#### EXAMPLE 2

- Move one forward
- $\bigcirc$  Move one backward
- ★ Move one left
- $\stackrel{\wedge}{\curvearrowright}$  Move one right

#### **MY SYMBOLS**

- \_\_\_\_\_ Move one forward
- \_\_\_\_\_ Move one backward
- \_\_\_\_\_ Move one left
- \_\_\_\_\_ Move one right

3. Use your symbols to write out an algorithm for getting through your maze. Number any repeated actions, such as "2 ➡" (go right twice) or "3 ↓" (move backward three times).

ALGORITHM	-												

- 4. Write **START** and **END** on this blank maze map.
- 5. Give your code symbols, algorithm, and blank maze map to friends and see if they can get through safely by following your algorithm and making Xs on the map from **START** to **END**. When they finish, you can check their map against yours to see if it matches. If they didn't make it safely, work through the algorithm yourself to find and fix the problem. Then, have your friends give it another go!