



## LESSON 1.2

# BOARD GEOMETRY AND THE COORDINATE SYSTEM

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### **LEVEL 1: Rules & Terminology**

**Scholastic Curriculum**

Version 1 | August 2018

## LESSON 1.2

# Board Geometry and the Coordinate System

## Lesson Structure

### 1. Chess Goals and Classroom Expectations

In this lesson students will learn algebraic notation and the coordinate system that describes the squares on a chessboard. They will also become familiar with the major highways of the chessboard: ranks, files, and diagonals.

### 2. Chess Instruction

**A. Getting Started:** Ask students work in pairs to set up the board as quickly as possible, with each student setting up one side of the board. *Repeat 2-3 times.*

**B. Review chess piece identification:** Call out the name of a piece and ask students raise that piece above their head.

**C. Relate directionality in the world to the chessboard:**  
Ask students for examples of different ways to get to school or to a friend's house. *Ask them to describe how they remember where things are in the world.*

**D. Introduce ranks, files, and diagonals:**  
Use common terms to describe ranks (horizontal/rows) and files (vertical/columns).

**E. Introduce the coordinate system:** Ask students to name the starting squares for each chess piece. Create routes on the chessboard for your students to follow (e.g., a1 to c5) and ask them figure out how to get from one square to another using ranks, files, and/or diagonals.

### 3. Play

Activity 1.2.2 or 1.2.3

## STANDARDS

- » **1.2A** List the attributes of the chessboard including squares, square colors, ranks, files, and diagonals.
- » **1.1B** Recognize individual square coordinates and know to use this terminology when referring to squares.

## MATERIALS

- » Demo Board or Tablet & Projector
- » Chessboards & Pieces
- » Worksheets:
  - [1.2.1 Board Geography](#)
  - [1.2.2 Caption the Pictures](#)

## DIFFERENTIATION

### ADVANCED STUDENTS

- » [1.2.1 Board Geography](#)
- » Activity 1.2.3

### NOVICE STUDENTS

- » One-on-one instruction

## VOCABULARY

Definitions on page 3.

- » **Rank**
- » **File**
- » **Diagonal**
- » **Center**
- » **Coordinate System**
- » **Algebraic Notation**
- » **Abbreviated Algebraic Notation**

## LESSON 1.2

# Vocabulary

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### 1. Rank

A horizontal line on a chessboard.

### 2. File

A vertical line on a chessboard.

### 3. Diagonal

A line consisting of the same color squares where each square touches the corner of the next in line.

### 4. Center

Four squares in the center of a chessboard: d4, d5, e4, e5.

### 5. Coordinate System

A system for identifying each square on a chessboard using letters and numbers in a grid pattern.

### 6. Algebraic Notation

A system for notating chess games that uses the square of origin and the destination square separated by a hyphen to record a move.

*(example: 1. e2-e4, e7-e5 2. g1-f3, etc)*

### 7. Abbreviated Algebraic Notation

A shortened version of algebraic notation that replaces the square of origin with the capitalized first letter of the piece that is moving—with the exception of pawn moves, which are written using only the destination square. *(example: 1. e4, e5 2. Nf3, etc)*

## LESSON 1.2 Activities

### Activity 1.2.1

#### Pawnpeii

*Materials: Chessboards & Pieces (or pencils and printed, paper chessboards)*

1. Pair students at chessboards with 8 pawns each (one side Black, the other White).
2. Ask students take turns placing all of their pawns on squares anywhere on the board.
3. The instructor, without looking at students' boards, should then call out random square coordinates one at a time.
4. If a pawn is on that square, it is engulfed by flaming hot lava and the student should remove it.
5. The instructor can also call out entire ranks, files, and diagonals, destroying all pieces on those squares.
6. After the instructor has called out 10 lava blasts, any student who has at least one pawn remaining is considered a winner.

### Activity 1.2.2

#### Domination

*Materials: Chessboards & Pieces*

1. Pair students at chessboards with 8 pawns each (one side Black, the other White).
2. White names a square and places a pawn on it.
3. Black then does the same, but cannot place a pawn on the same rank, file, or diagonal as the White pawn.
4. The game continues until someone has no moves left and therefore loses the game.

### Activity 1.2.3

#### Connect Four

*Materials: Chessboards & Pieces*

1. Pair students at chessboards with full sets of pieces to the side.
2. Students will take turns placing pieces on the chessboard, calling out the coordinate of each square.
3. The first student to place four pieces in a row must identify the file, rank, or diagonal and the names of the pieces used in order to win the game.

# Worksheet 1.2.1

## Board Geography

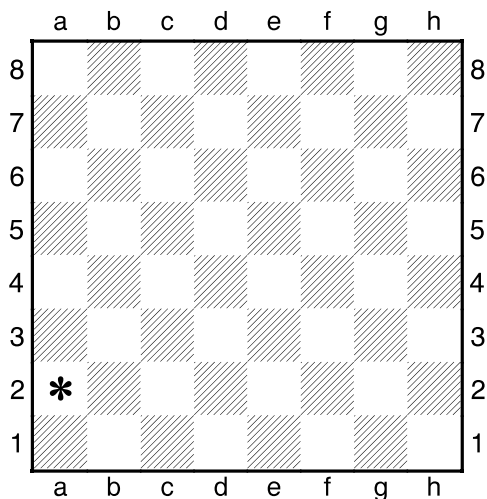
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Date: \_\_\_\_\_

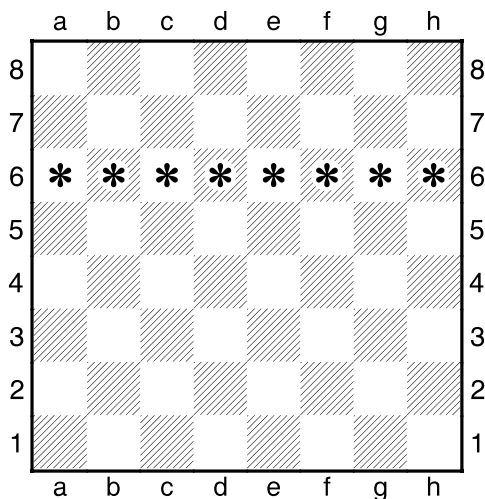
School: \_\_\_\_\_

Grade: \_\_\_\_\_

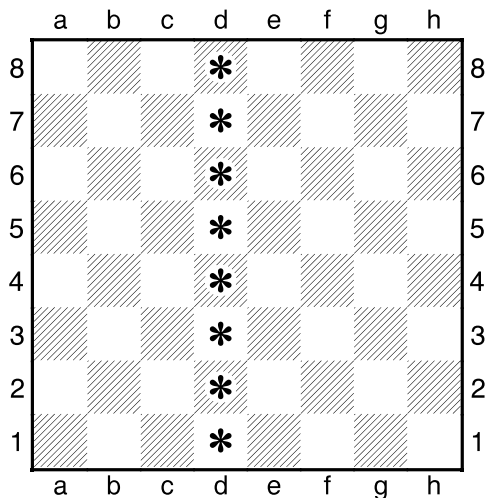
For each position shown, write the name of the highlighted square, file, rank or diagonal.



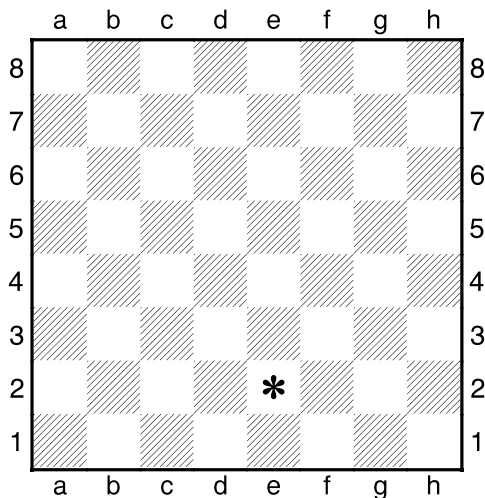
1. \_\_\_\_\_



2. \_\_\_\_\_



3. \_\_\_\_\_



4. \_\_\_\_\_

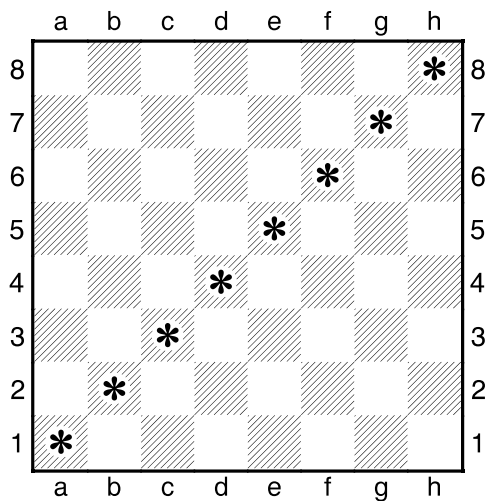
# Worksheet 1.2.1

## Board Geography

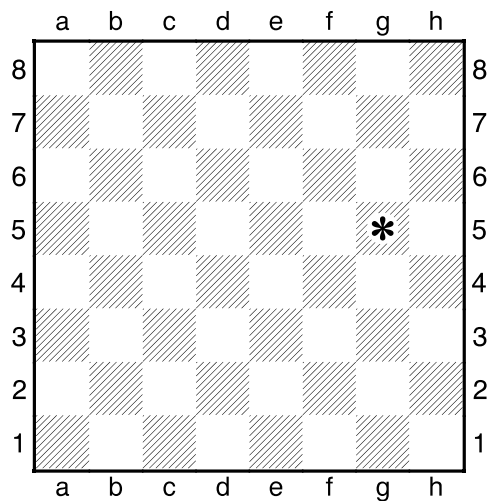
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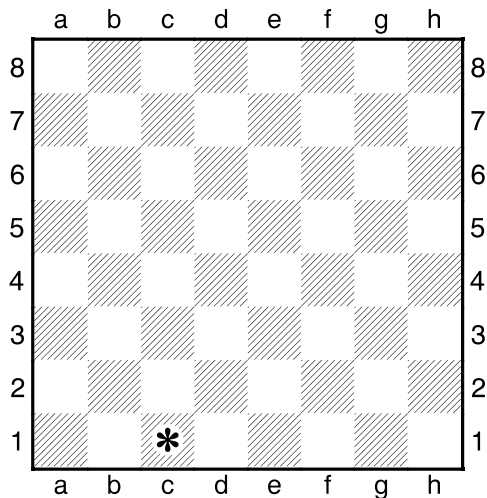
For each position shown, write the name of the highlighted square, file, rank or diagonal.



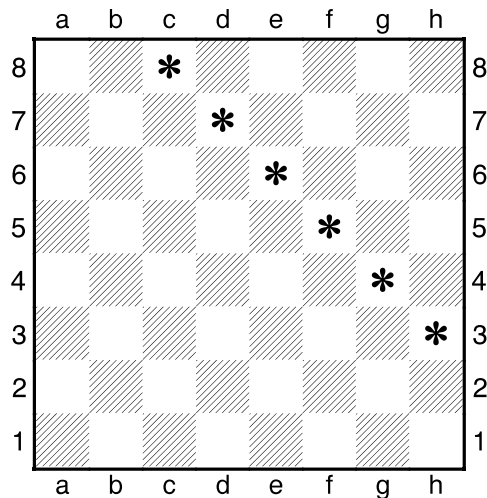
5. \_\_\_\_\_



6. \_\_\_\_\_



7. \_\_\_\_\_

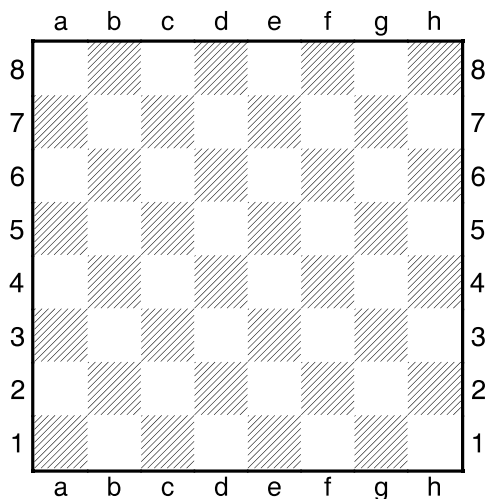


8. \_\_\_\_\_

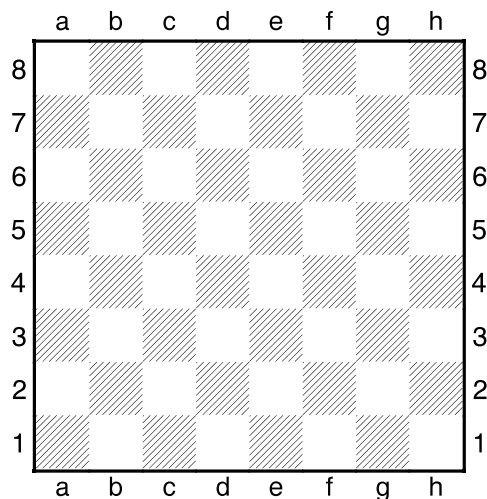
**Worksheet 1.2.1**  
**Board Geography**  
(continued)



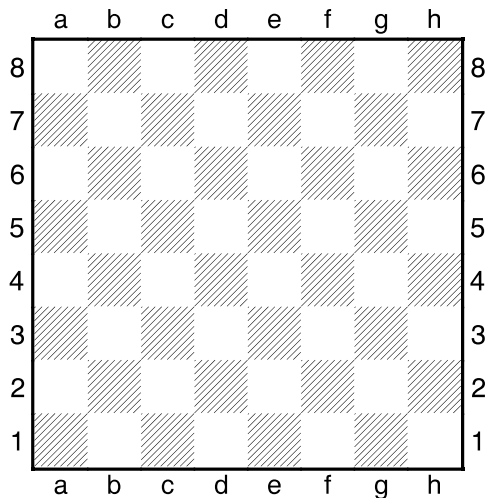
Mark the square, file, rank, or diagonal directly on the chessboard for each coordinate shown.



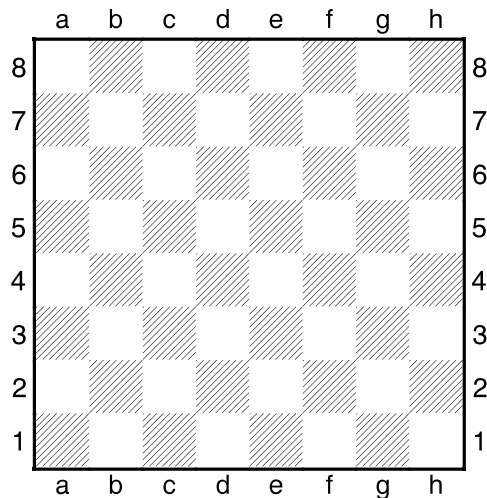
9. \_\_\_\_\_ e5 \_\_\_\_\_



10. \_\_\_\_\_ a3 - f8 \_\_\_\_\_



11. \_\_\_\_\_ c-file \_\_\_\_\_



12. \_\_\_\_\_ 7th rank \_\_\_\_\_