

Battle Corn

Lesson 15 Answer Sheet

Name: __Answer Guide__

Date: _____

Vocabulary

Magnetic North - the direction that the north-pointing end of a compass needle faces based on Earth's magnetic fields

True North - the geographic location on Earth's surface that aligns with the "top" of the Earth and is perpendicular to the horizon

Activity 1

True North and Magnetic North Clues

Using the Ari Compass Application, you'll first create a list of guesses to locate your partner's corn on their map. The challenge will be that one partner will receive clues using true north directions, and one partner will receive magnetic north clues!

True North Example Clue

A corn is located South South West of South Dakota.

Magnetic North Example Clue

A corn is located North East of Kentucky.

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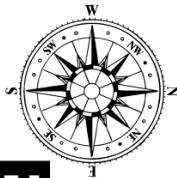
1

Partner 1: True North Clues

1. Cut out your corn pieces and place them on your map at the intersection of lines on the grid.
2. Create **10 true north clues** below. These clues should reference the compass provided with your map and the directions shown on it.

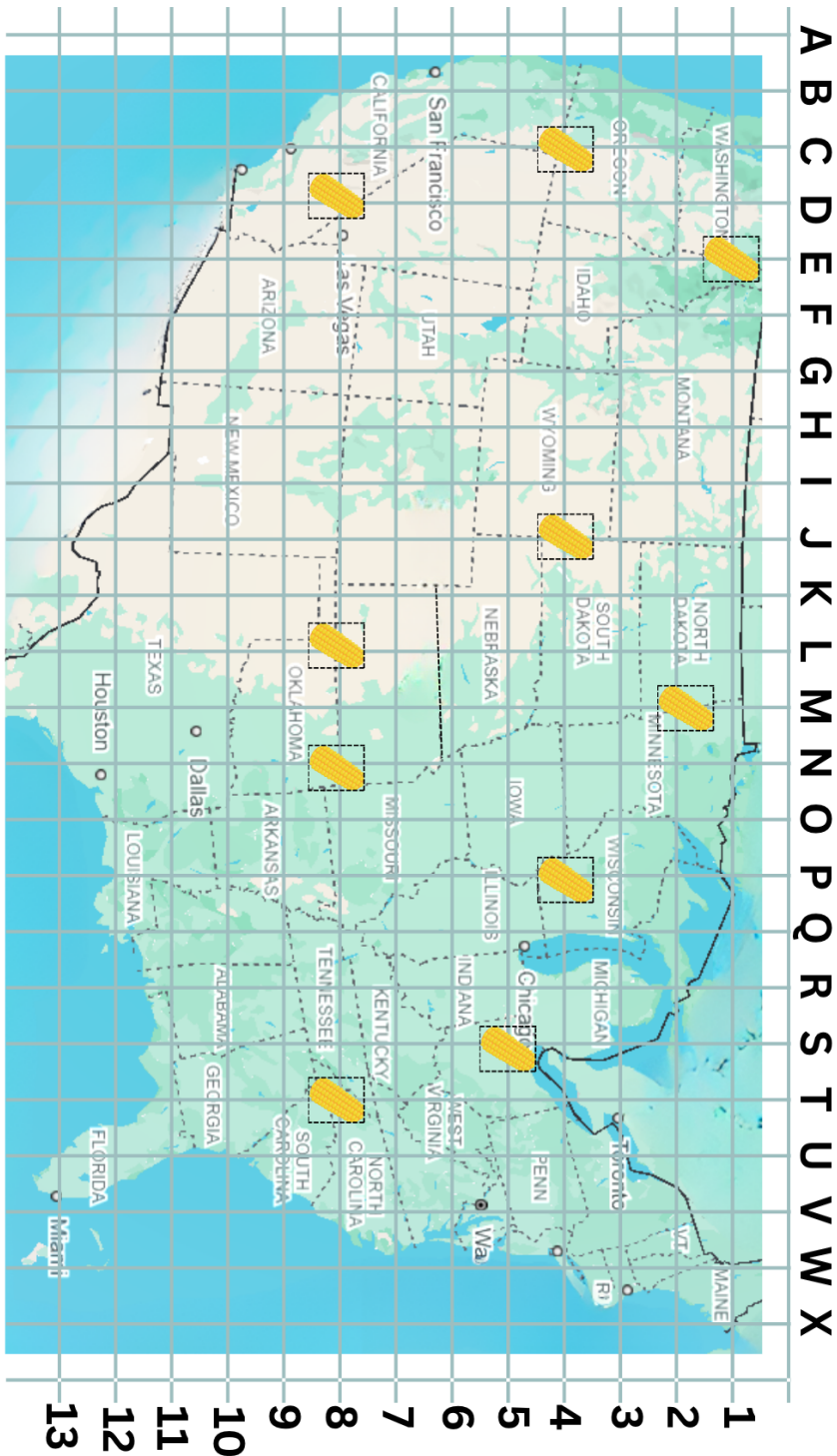
(Answers will vary based on placement of pieces)

- a. Clue 1: A corn is located East of Washington.
- b. Clue 2: A corn is located South of Oregon.
- c. Clue 3: A corn is located West of Las Vegas.
- d. Clue 4: A corn is located East of Wyoming.
- e. Clue 5: A corn is located East of North Dakota.
- f. Clue 6: A corn is located Northwest of Oklahoma.
- g. Clue 7: A corn is located Northeast of Oklahoma.
- h. Clue 8: A corn is located East of Tennessee.
- i. Clue 9: A corn is located East of Chicago.
- j. Clue 10: A corn is located in Southern Wisconsin.



True North Player

Example Answer Sheet



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Partner 2: Magnetic North Clues

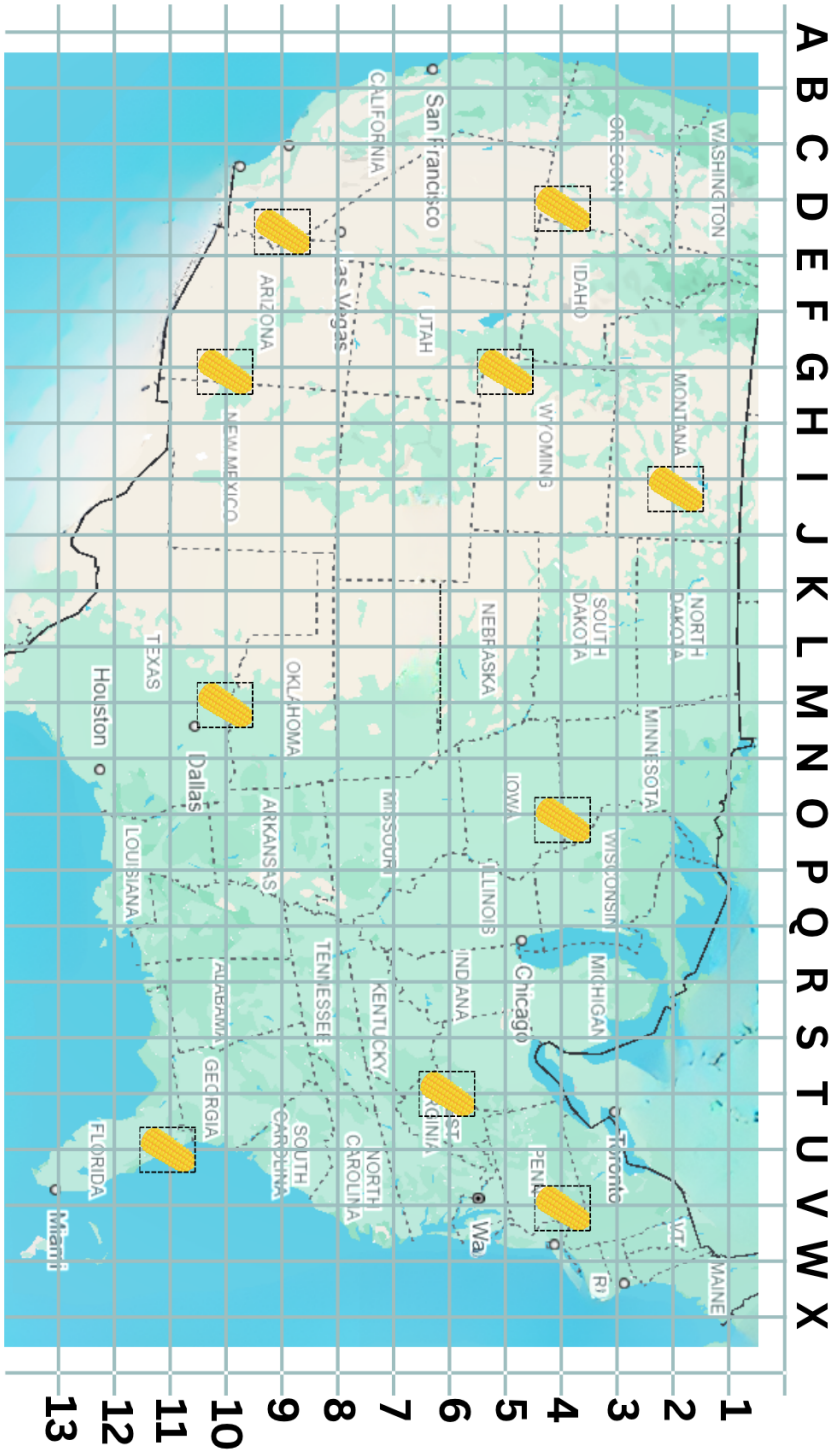
1. Cut out your corn pieces and place them on your map at the intersection of lines on the grid.
2. Create **10 magnetic north clues** below. These clues should reference the Ari Compass Application set to the Advanced setting.

(Answers will vary based on location relative to magnetic fields.)

- a. Clue 1: A corn is located North of Idaho.
- b. Clue 2: A corn is located North of Las Vegas.
- c. Clue 3: A corn is located Northwest of New Mexico.
- d. Clue 4: A corn is located North of Wyoming.
- e. Clue 5: A corn is located South of Montana.
- f. Clue 6: A corn is located Northwest of Oklahoma.
- g. Clue 7: A corn is located North of Wisconsin.
- h. Clue 8: A corn is located North of RI (Rhode Island).
- i. Clue 9: A corn is located South of Kentucky.
- j. Clue 10: A corn is located West of Georgia.

Magnetic North Player

Example Answer Sheet



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Activity 2

Guess the Corn Location

After generating clues, Partner 2 will give the Ari with the Compass application open, set to the Advanced setting for Partner 1. Partner 1 will read their clues, pausing after each clue and allowing Partner 2 **two guesses**, as to where they believe the corn is located.

When guessing, partners can use the column letter and row number to refer to locations.

If a partner guesses the correct location, they earn the corn! The partner who collects the most corn wins.

Record your guesses below.

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Example Game Play

Partner 1 True North Clue

A corn is located South South West of South Dakota.

Partner 2

Using the compass provided.

*Guess 1: Is a corn located at **K4**?*

*Guess 2: Is a corn located at **J4**?*

Partner 1 Provided Clues

1. Clue 1: A corn is located East of Washington.
 - a. Is a corn located at D1?
 - b. Is a corn located at E1?
2. Clue 2: A corn is located South of Oregon.
 - a. Is a corn located at D4?
 - b. Is a corn located at C4?
3. Clue 3: A corn is located West of Las Vegas.
 - a. Is a corn located at C8?
 - b. Is a corn located at D8?
4. Clue 4: A corn is located East of Wyoming.
 - a. Is a corn located at J5?
 - b. Is a corn located at J3?
5. Clue 5: A corn is located East of North Dakota.
 - a. Is a corn located at M1?
 - b. Is a corn located at M2?

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6. Clue 6: A corn is located Northwest of Oklahoma.
 - a. Is a corn located at L8?
 - b. Is a corn located at L9?
7. Clue 7: A corn is located Northeast of Oklahoma.
 - a. Is a corn located at N7?
 - b. Is a corn located at N8?
8. Clue 8: A corn is located East of Tennessee.
 - a. Is a corn located at S8?
 - b. Is a corn located at T8?
9. Clue 9: A corn is located East of Chicago.
 - a. Is a corn at T5?
 - b. Is corn at U5?
10. Clue 10: A corn is located in the Southwest of Wisconsin.
 - a. Is a corn at N6?
 - b. Is a corn at N7?

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Example Game Play

Partner 2 Magnetic North Clue
A corn is located Northeast of Kentucky.

Partner 1
Using the Ari Compass application set to Advanced.

Guess 1: Is a corn located at **T8**?

Guess 2: Is a corn located at **T9**?

Partner 2 Provided Clues

1. Clue 1: A corn is located North of Idaho.
 - a. Is a corn located at D4?
 - b. Is a corn located at E4?
2. Clue 2: A corn is located North of Las Vegas.
 - a. Is a corn located at E9?
 - b. Is a corn located at D9?
3. Clue 3: A corn is located Northwest of New Mexico.
 - a. Is a corn located at H11?
 - b. Is a corn located at G11?
4. Clue 4: A corn is located North of Wyoming.
 - a. Is a corn located at G5?

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- b. Is a corn located at H5?
- 5. Clue 5: A corn is located South of Montana.
 - a. Is a corn located at I1?
 - b. Is a corn located at I2?
- 6. Clue 6: A corn is located Northwest of Oklahoma.
 - a. Is a corn located at N9?
 - b. Is a corn located at M10?
- 7. Clue 7: A corn is located North of Wisconsin.
 - a. Is a corn located at O4?
 - b. Is a corn located at O3?
- 8. Clue 8: A corn is located North of RI (Rhode Island).
 - a. Is a corn located at V3?
 - b. Is a corn located at V4?
- 9. Clue 9: A corn is located South of Kentucky.
 - a. Is a corn located at T7?
 - b. Is a corn located at T6?
- 10. Clue 10: A corn is located West of Georgia.
 - a. Is a corn located at T11?
 - b. Is a corn located at U11?

Exit Ticket

Please respond to the following prompts.

1. Why do you think magnetic north varies?

Magnetic north varies based on Earth's magnetic fields. Differences in magnetic fields are based on location on the Earth's surface as well as time. The movement and change of iron in Earth's outermost layer impacts magnetic fields as well.

2. Which type of directions were easier to give and which were easier to receive?

True north is a fixed or unmoving direction, as it was easiest to give and receive, as the directions could be found and traced using an image of a compass on paper, as opposed to tracking an ever-changing compass needle.