

Haunted Bot

Boo-Bot learned the wrong rule. Find it, then fix the photos it learned from.

OBJECTIVE

Boo-Bot hands a ghost cookie to every guest in a ghost costume. It learned from last year's party photos, but in those photos the ghosts all had something else in common too. So Boo-Bot may have learned the wrong rule. Work out which rule it learned, then fix its photos so only the right rule fits: a ghost is anyone wearing a SHEET.

QUICK START – READ THIS, START PLAYING

- 1 One player is Boo-Bot and takes the grown-up guide. Everyone else is a detective. Lay out the 6 Rule cards face up and draw the team's 5 pumpkins on scrap paper.
- 2 Read a Case card aloud and lay out its photos. Detectives: turn face down every Rule card that doesn't fit. A rule fits when every ghost photo has its clue and no other photo does.
- 3 Boo-Bot secretly rolls the die to see which fitting rule it learned. Detectives show Boo-Bot one guest from the leftover pile. Boo-Bot says BOO! (a ghost cookie) or No cookie. Each test costs 1 pumpkin.
- 4 When you know the rule, say it. Then fix the photos: add guests from the pile until only SHEET fits. Each added guest costs 1 pumpkin. Pumpkins left = your score.

TEST BOO-BOT

- 1 Detectives pick any guest from the pile (not the photos) and show it to Boo-Bot.
- 2 Boo-Bot checks only its secret rule: if the guest has that clue, it says BOO! and hands over a cookie. If not, it says No cookie. Cross out 1 of the team's pumpkins.
- 3 Turn face down every suspect that would have answered differently. Keep testing until one suspect is left, or guess early.
- 4 Say your answer out loud. Wrong guess: cross out 2 pumpkins and keep testing. Right guess: Boo-Bot cheers and shows the guide.

HOW TO SCORE

- 1 Each case starts at 5 pumpkins. Tests and fix cards cost 1, a wrong guess costs 2.
- 2 A sharp team never needs more than 2 tests or 1 fix card per case, so 2 or more pumpkins is a perfect case.
- 3 Play all six cases for a full party. Add up your pumpkins and try to beat it next Halloween.

TIPS

- 1 Every case has 3 suspects, and with good tests 2 is always enough. Testing random guests needed more than 2 in 30% of 3,600 practice games.
- 2 Pick a guest who has one suspect's clue but not another's. Whatever Boo-Bot says, a suspect goes face down.
- 3 A guest who has every suspect's clue, or none of them, gets the same answer from every rule, so it tells you nothing. That was 11% of the guests in the pile.
- 4 To fix the photos, look for one guest who isn't a ghost but has both wrong clues. One card like that fixes every case.

WHAT THE GAME TEACHES

- 1 A model learns whatever rule fits its training examples. It can't tell which pattern you meant.
- 2 When the examples share an accident (every ghost photo was taken at night), a wrong rule fits just as well as the right one. That's called a spurious correlation, or a shortcut.
- 3 You find a shortcut by testing the model on new examples that split the rules apart, like a ghost in daylight.