

## PNI: Prime Number Investigation

Ages 11+

### This Really Good Stuff® product includes:

- PNI: Prime Number Investigation Game Board
- 2 Agent Score Card Work Mats
- 4 Spinners
- 2 Dice
- Decoder
- Task Card
- This Really Good Stuff® Instructional Guide

Congratulations on your purchase of this **Really Good Stuff® PNI: Prime Number Investigation**—a fun opportunity for students to think like a detective as they find prime and composite numbers.

### PNI: Prime Number Investigation

#### Number of Players: 2

**Object:** To find all factors of whole numbers from 1 to 100 and to determine whether each whole number is prime or composite

**Materials:** PNI: Prime Number Investigation Game Board, 2 Agent Score Card Work Mats, Spinner, 2 Dice, Decoder

#### How to Play:

1. Both Agents:
  - Sit so that you can both see the PNI: Prime Number Investigation Game Board.
  - Decide who goes first.
2. Agent 1:
  - Spin to find out how to choose a number:
    - Roll a Number: Roll the Dice to create a two-digit number.
    - Pick Your Own Number: Choose any number on the Board you want.
    - Lose a Turn: Play moves on to agent 2.
    - Bonus Turn: Choose any number on the Board you want for this turn. Then spin again for your bonus turn.
  - Use a dry erase marker to write the number on your Agent Score Card.
  - Record all of the factors for that number.
  - Determine if the number is prime or composite.
    - Check the number on the PNI: Prime Number Investigation Game Board by using the Decoder to reveal a P for a prime number or a C for a composite number.
    - The other agent checks your factor list using the answer key.
  - Record your score:
    - Prime Number = 3 points
    - Composite Number = 1 point

- Use a dry erase marker to mark the number with an X for Prime and an O for Composite on the Game Board. This number cannot be played again this game.
3. Agent 2:
    - Repeat step 2.
  4. Both agents:
    - Play continues until one Score Card is filled or you run out of time.
  5. Add up the Score column on each Score Card. Fill in the Total. The agent with the most points wins.

### Introducing the PNI: Prime Number Investigation

Before introducing the **PNI: Prime Number Investigation**, make copies of this Really Good Stuff® Instructional Guide and file the pages for future use. Or, download another copy of it from our website at [reallygoodstuff.com](http://reallygoodstuff.com).

Choose a volunteer to play *PNI: Prime Number Investigation* with you for the class. Explain the object of the game and how to play to the volunteer. With the rest of the class gathered around, encourage the volunteer to play the game. Showing students the *Task Card* and *PNI: Prime Number Investigation Factor Pairs/Answer Key*, indicate that both will be in the center with the game if they need to be reminded of how to play and to check their answers.

### Task Card

Post the *Task Card* at the numeracy center where students will be able to see it easily. Remind students to refer to the shaded section at the top of the *Card* to be sure that they have all the needed materials.

### PNI: Prime Number Investigation Factor Chart/Answer Key

Copy the *PNI: Prime Number Investigation Factor Pairs/Answer Key Reproducible* on cardstock for durability. Leave it in the **Prime Number Investigation** bag for students to refer to when checking the factors listed on their *Agent Score Card*.

# Factor Pairs

★ = Prime

1	2	3	4	5	6	7	8	9	10
1 • 1	1 • 2 ★	1 • 3 ★	1 • 4 2 • 2	1 • 5 ★	1 • 6 2 • 3	1 • 7 ★	1 • 8 2 • 4	1 • 9 3 • 3	1 • 10 2 • 5
11	12	13	14	15	16	17	18	19	20
1 • 11 ★	1 • 12 2 • 6 3 • 4	1 • 13 ★	1 • 14 2 • 7	1 • 15 3 • 5	1 • 16 2 • 8 4 • 4	1 • 17 ★	1 • 18 2 • 9 3 • 6	1 • 19 ★	1 • 20 2 • 10 4 • 5
21	22	23	24	25	26	27	28	29	30
1 • 21 3 • 7	1 • 22 2 • 11	1 • 23 ★	1 • 24 2 • 12 3 • 8 4 • 6	1 • 25 5 • 5	1 • 26 2 • 13	1 • 27 3 • 9	1 • 28 2 • 14 4 • 7	1 • 29 ★	1 • 30 2 • 15 3 • 10 5 • 6
31	32	33	34	35	36	37	38	39	40
1 • 31 ★	1 • 32 2 • 16 4 • 8	1 • 33 3 • 11	1 • 34 2 • 17	1 • 35 5 • 7	1 • 36 2 • 18 3 • 12 4 • 9 6 • 6	1 • 37 ★	1 • 38 2 • 14	1 • 39 3 • 13	1 • 40 2 • 20 4 • 10 5 • 8
41	42	43	44	45	46	47	48	49	50
1 • 41 ★	1 • 42 2 • 21 3 • 14 6 • 7	1 • 43 ★	1 • 44 2 • 22 4 • 11	1 • 45 3 • 15 5 • 9	1 • 46 2 • 23	1 • 47 ★	1 • 48 2 • 24 3 • 16 4 • 12 6 • 8	1 • 49 7 • 7	1 • 50 2 • 25 5 • 10
51	52	53	54	55	56	57	58	59	60
1 • 51 3 • 17	1 • 52 2 • 26 4 • 13	1 • 53 ★	1 • 54 2 • 27 3 • 18 6 • 9	1 • 55 5 • 11	1 • 56 2 • 28 4 • 14 7 • 8	1 • 57 3 • 19	1 • 58 2 • 29	1 • 59 ★	1 • 60 2 • 30 3 • 20 4 • 15 5 • 12 6 • 10
61	62	63	64	65	66	67	68	69	70
1 • 61 ★	1 • 62 2 • 31	1 • 63 3 • 21 7 • 9	1 • 64 2 • 32 4 • 16 8 • 8	1 • 65 5 • 13	1 • 66 2 • 33 3 • 22 6 • 11	1 • 67 ★	1 • 68 2 • 34 4 • 17	1 • 69 3 • 23	1 • 70 2 • 35 5 • 14 7 • 10
71	72	73	74	75	76	77	78	79	80
1 • 71 ★	1 • 72 2 • 36 3 • 24 4 • 18 6 • 12 8 • 9	1 • 73 ★	1 • 74 2 • 37	1 • 75 3 • 25 5 • 15	1 • 76 2 • 38 4 • 19	1 • 77 7 • 11	1 • 78 2 • 39 3 • 26 6 • 13	1 • 79 ★	1 • 80 2 • 40 4 • 20 5 • 16 8 • 10
81	82	83	84	85	86	87	88	89	90
1 • 81 3 • 27 9 • 9	1 • 82 2 • 41	1 • 83 ★	1 • 84 2 • 42 3 • 28 4 • 21 6 • 14 7 • 12	1 • 85 5 • 17	1 • 86 2 • 43	1 • 87 3 • 29	1 • 88 2 • 44 4 • 22 8 • 11	1 • 89 ★	1 • 90 2 • 45 3 • 30 5 • 18 6 • 15 9 • 10
91	92	93	94	95	96	97	98	99	100
1 • 91 7 • 13	1 • 92 2 • 46 4 • 23	1 • 93 3 • 31	1 • 94 2 • 47	1 • 95 5 • 19	1 • 96 2 • 48 3 • 32 4 • 24 6 • 16 8 • 12	1 • 97 ★	1 • 98 2 • 49 7 • 14	1 • 99 3 • 33 9 • 11	1 • 100 2 • 50 4 • 25 5 • 20 10 • 10