DraftKids
Learn through sports

PRINTABLE · GRADES 3-5 · AGES 8–11

Hat Trick Patterns

Hockey is full of patterns! Points, goals, minutes and shots grow by the same rule again and again. Find each rule, then use it to solve. Every team and player on this sheet is made up.

Name _____

Date _____

PATTERN TOOLKIT

Pattern — numbers or shapes that follow a rule

Rule — what happens each step (+2, ×3)

Term — each number in the pattern

In to Out — put a number in, use the rule

Check it — test the rule on every step



3 GOALS BY ONE PLAYER IN ONE GAME = HAT TRICK

PATTERN STRIP · NHL TEAMS EARN 2 STANDINGS POINTS FOR EVERY WIN



ROOKIE

1 The Pine Ridge Polar Bears earn **2 points** for every win. Here are their points after each win. Fill in the next two.

2 , 4 , 6 , 8 , ☐ , ☐

ROOKIE

2 Coach Rivera lines up pucks in rows for a drill: **5, 10, 15, 20**. What is the rule? How many pucks will be in **row 6**?

WORK SPACE

Rule _____ Row 6 _____

STARTER

3 Ana skates warm-up laps. Each day she adds the same number of laps. Find the missing number.

3 , 7 , ☐ , 15 , 19

Rule _____

STARTER

4 The Lakeside Lynx have **48** rolls of stick tape. They use **6** rolls every game. After how many games will the tape run out?

WORK SPACE

_____ games

PRO

5 A **hat trick** is 3 goals by one player in one game. Complete the table.

HAT TRICKS	1	2	4	
GOALS	3	6		21

PRO

6 A pattern starts at **1** and adds **2** each time: 1, 3, 5, 7, ... Will the number **20** ever be in this pattern? Explain.

ALL-STAR

7 The Owls fan club doubles in size each week: **3, 6, 12, 24**, ... How many members will the club have in **week 6**?

WORK SPACE

_____ members

CHALLENGE ★

8 Each period, the Owls take **6** shots and the Lynx take **12** shots. Fill in the totals. How do the patterns compare?

PERIOD	1	2	3
OWLS	6	12	
LYNX	12	24	

Compare _____

A In & Out Tables

Each table uses a real hockey rule. Multiply to fill in each empty box.

1 win = 2 points

WINS	POINTS
1	2
2	4
3	
5	
8	

1 period = 20 minutes

PERIODS	MINUTES
1	20
2	40
3	
6	
9	

1 game = 12 players on the ice

GAMES	PLAYERS
1	12
2	24
3	
4	
6	

B Find the Rule

Write the missing number in the box. Then write the rule in words.

1. **Shots by the Polar Bears in each practice** — 5, 9, 13, ☐, 21, 25 — Rule _____
2. **Tickets left at the Owls' box office** — 60, 52, 44, ☐, 28, 20 — Rule _____
3. **Fans doing the wave in each section** — 2, 6, 18, ☐, 162 — Rule _____
4. **Kids at Lynx hockey camp each day** — 1, 2, 4, 7, 11, ☐ — Rule _____

C Pattern Power-Ups

Shape patterns, growing patterns and two-step pattern problems.

1 This pattern repeats: puck, puck, stick. What will the **20th** object be?



WORK SPACE

_____

2 Coach Rivera stacks pucks in a growing pattern. How many pucks will **figure 5** have?



FIGURE 1 FIGURE 2 FIGURE 3

WORK SPACE

_____ **pucks**

3 The Polar Bears have **20** points. They earn **2** points for each win. How many wins do they need to reach **30** points? Make a pattern to check.

WORK SPACE

_____ **wins**

4 Challenge: A minor penalty is **2 minutes**. The Lynx take 1 minor in game 1, 2 in game 2, 3 in game 3 and 4 in game 4. How many penalty minutes is that **in all**?

WORK SPACE

_____ **minutes**

Answer Key (for teachers & parents)

Answers for **Hat Trick Patterns**, with the work shown. Print pages 1 and 2 for students and keep this page for checking. Accept any clear wording for rules (for example "+4" or "add 4 each time"). Hat tricks, standings points, period length, minor penalties and players on the ice are real NHL rules; teams and players are made up.

Page 1 Problems

1. Answer: **10, 12**
   Rule: add 2. 8 + 2 = 10, 10 + 2 = 12
2. Answer: **Add 5; row 6 = 30**
   5, 10, 15, 20, 25, 30
3. Answer: **11 (rule: add 4)**
   3, 7, 11, 15, 19
4. Answer: **8 games**
   48, 42, 36, 30, 24, 18, 12, 6, 0 (48 ÷ 6 = 8)
5. Answer: **12 goals; 7 hat tricks**
   Rule: multiply by 3. 4 × 3 = 12, 21 ÷ 3 = 7
6. Answer: **No**
   Adding 2 to an odd number always gives an odd number, so every term is odd. 20 is even.
7. Answer: **96 members**
   Rule: multiply by 2. 3, 6, 12, 24, 48, 96
8. Answer: **Owls 18, Lynx 36**
   The Lynx total is always 2 times the Owls total (the Lynx add 12 each period and the Owls add 6).

C · Pattern Power-Ups

1. Answer: **Puck**
   Every 3rd object is a stick (3, 6, 9, … 18). 20 is not a multiple of 3, so it is a puck.
2. Answer: **15 pucks**
   Add one more row each figure: 1, 3, 6, 10, 15
3. Answer: **5 wins**
   20, 22, 24, 26, 28, 30
4. Answer: **20 minutes**
   2 + 4 + 6 + 8 = 20

Quick score

Page 1 problems	_____ / 8
A · Tables (9 boxes)	_____ / 9
B · Find the Rule	_____ / 4
C · Power-Ups	_____ / 4
Total	**_____ / 25**

Skills practiced

Number patterns · Finding a rule · Input/output tables · Multiplication · Repeating patterns · Growing patterns · Comparing patterns

Teaching tip: Have students write the change between each pair of numbers above the pattern before naming the rule. If the change grows each time (Section B #4) or the numbers jump fast (B #3), the rule is not plain adding. In problem 8, ask how the Lynx row compares to the Owls row in every column.

A · In & Out Tables

1. Answer: **6, 10, 16**
   Wins × 2
2. Answer: **60, 120, 180**
   Periods × 20
3. Answer: **36, 48, 72**
   Games × 12 (6 players per team)

B · Find the Rule

1. Answer: **17 · Add 4**
2. Answer: **36 · Subtract 8**
3. Answer: **54 · Multiply by 3**
4. Answer: **16 · Add 1, then 2, then 3, … (add one more each time)**

Enjoyed this? A quick review on TPT helps us make more free sheets! Follow the DraftKids store for new ones.