Cupcake Constellation

HOST ONLY - preparation and story

Includes answers. Keep these pages with an adult.

The birthday team has arrived, but one important part of the celebration is missing. Arrange paper cupcake stars to finish the birthday constellation. Collect five named badge digits, then use the final sheet to finish your mission. All the clues you need are printed here. Work together and ask for a hint whenever you want.

1. Print one player pack and two record sheets per team. Keep the host answers and all three hint levels with the adult.

2. Keep every clue as a full sheet at one table. Put the final sheet face down until all five results are recorded. Nothing needs cutting, folding or hiding.

3. Give each child a pencil. Choose a reader, recorder and checker, and swap jobs after each clue. Use one team for 2-4 children or two teams for 5-6.

Players: 4; teams: 1. Print one player and prop set per team. Invitations and certificates: 4 each.

No locks, purchases or cutting required. Keep all clues at a low table. Scissors are optional and for adults only.

Cupcake Constellation

HOST ONLY - solution guide

1. Stars: 8

Decode EIGHT; the conversion table maps it to 8.

2. Orbit: 4

Only STAR4 has every letter in the correct order; the next square is 4.

3. Ribbon: 6

A fails striped; C fails not-round; only B meets all three requirements and gives 6.

4. Steps: 7

From S at row 1 column 1, the eight moves end at row 3 column 3. Copy that cell, not the earlier visits.

5. Tray: 5

Subtract 2 from 17, divide by 3 to get 5. Check 2 × 5 + 5 = 15.

6. Final: 45687

grid-placement: Orbit > Tray > Ribbon > Stars > Steps. Keep leading zeroes.

Cupcake Constellation

HOST ONLY - timeline and paper check

3 minutes: Read the opening story and explain the badges.

5 minutes: Solve Stars; offer one hint at a time.

5 minutes: Solve Orbit; offer one hint at a time.

5 minutes: Solve Ribbon; offer one hint at a time.

5 minutes: Solve Steps; offer one hint at a time.

5 minutes: Solve Tray; offer one hint at a time.

5 minutes: Combine the badges on the final sheet.

2 minutes: Read the ending and award certificates.

Paper completion: check each badge against the solution guide, then check the final code. No device is required.

Mission complete! Cupcake Constellation is ready for its birthday celebration. Thank your team for sharing ideas and helping one another.

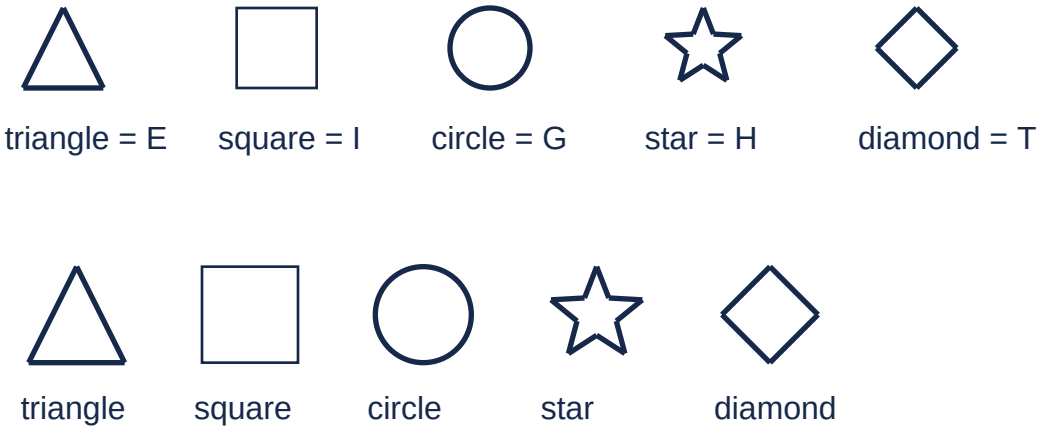
Duration and ages are estimates. Adjust pace and offer help for your group.

Cupcake Constellation

Player clue 1: Stars | Team 1

Welcome, birthday explorers! Arrange paper cupcake stars to finish the birthday constellation. Find five badge numbers. Use them on the last page. You can help each other and ask me for hints.

Decode every symbol, including repeats. Use the printed conversion table to turn the completed word into one digit.



EIGHT = 8

ZERO = 0

Stars badge: _____

Cupcake Constellation

Player clue 2: Orbit | Team 1

Find the complete word STAR, reading to the RIGHT only. Close matches are decoys. Copy the digit immediately after the exact word.

Find STAR; only read to the RIGHT.

S	T	A	Y	7	S	U	N
A	S	T	A	R	4	A	B
T	S	A	R	8	M	A	P
M	O	O	N	9	E	N	D

Answer = digit in the next square after the word.

Orbit badge: _____

Cupcake Constellation

Player clue 3: Ribbon | Team 1

Find the ONE card matching all three requirements. Cross out cards that fail any requirement. Record its digit.

Rule: striped = yes

Rule: round = no

Rule: tagged = yes

Card A - digit 8
striped: no / round: no / tagged: yes

Card B - digit 6
striped: yes / round: no / tagged: yes

Card C - digit 2
striped: yes / round: yes / tagged: yes

Ribbon badge: _____

Cupcake Constellation

Player clue 4: Steps | Team 1

Start at S. Follow the full move list one square at a time, including backtracking. Copy ONLY the endpoint digit.

S: 7	**9**	**1**	**3**
0	**2**	**4**	**6**
3	**5**	**7**	**9**

right > down > right > up > left > down > right > down

One arrow = one square. S = start.

Steps badge: _____

Cupcake Constellation

Player clue 5: Tray | Team 1

All parcels have the same whole-number weight. Use the first rule to find ONE parcel, then check it against the second rule.

3 parcels + 2 loose units = 17 units

2 parcels + 5 loose units = 15 units

One parcel = ? units. Whole numbers 1-9.

All parcels have equal weight.

Tray badge: _____

Cupcake Constellation

Player clue 6: Final | Team 1

Place each badge digit in its named slot. Follow the printed reading order and join the five digits.

A2: Stars ?	**B2: Orbit** ?	**C2: Ribbon** ?
D2: Steps ?	**E2: Tray** ?	

READ SLOTS IN THIS ORDER:

B2 > E2 > C2 > A2 > D2

Final badge: _____

Need help? Ask your host for one hint at a time.

Cupcake Constellation

Hint cards - level 1 (spoilers; keep with host)

1. Stars

Each named shape always stands for the same letter.

2. Orbit

Look for S, then check every letter.

3. Ribbon

Check every rule, not only the first.

4. Steps

One move is one square. Revisited squares still count as moves.

5. Tray

The loose units are separate from the equal parcels.

6. Final

Keep the five badge results visible. Every number has a badge name.

Cupcake Constellation

Hint cards - level 2 (spoilers; keep with host)

1. Stars

Write letters in message order, and repeat a letter when a symbol repeats.

2. Orbit

A missing or swapped letter is not STAR.

3. Ribbon

Rule 2 says round = no. A positive match on one rule is not enough.

4. Steps

Follow moves in the given order; do not skip a left or up step.

5. Tray

Remove the loose units before sharing the remaining total.

6. Final

Use the order, slots, route or matching columns printed on this page.

Cupcake Constellation

Hint cards - level 3 (spoilers; keep with host)

1. Stars

Read the whole decoded word before choosing a conversion row.

2. Orbit

After finding the whole word, copy the NEXT cell, not a digit elsewhere in the row.

3. Ribbon

Compare the three yes/no values in each row. Only one row matches the complete rule list.

4. Steps

Mark your position after each move. Read the cell after move eight.

5. Tray

Check the same whole-number result in BOTH equations.

6. Final

Start with the Orbit badge, then follow the printed rule.

Cupcake Constellation

Team 1 badge record (no cutting needed)

Write a digit beside each badge as you solve its clue.

Stars: _____

Orbit: _____

Ribbon: _____

Steps: _____

Tray: _____

Reader: reads the clue. Recorder: writes the digit. Path finder: traces routes. Swap roles every clue.

Cupcake Constellation

Team 1 paper unlock card

Our five badges are ready. We used the final sheet to find this code:

_____

Host: compare this with your solution guide. When it matches, read the ending and celebrate.

No physical lock or prize is required. You may draw a celebration star on this card.

Cupcake Constellation

You're invited to a birthday mystery!

Join Birthday Explorer for Cupcake Constellation.

Arrange paper cupcake stars to finish the birthday constellation.

Date: _____

Time: _____

Place: _____

Bring your curiosity. Paper and pencils are provided. Work together, share ideas and solve six clues.

Designed for ages 8-10. Estimated 30-45 minutes.

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Cupcake Constellation

Birthday Mystery Explorer

Presented to Birthday Explorer

Team member: _____

For completing Cupcake Constellation with curiosity, teamwork and kindness.

Mission complete! Cupcake Constellation is ready for its birthday celebration. Thank your team for sharing ideas and helping one another.

Date: _____

Host signature: _____

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