BIG SQUARE PUZZLE
(aka "Tarsia" Puzzle)

Big Square Puzzles are located in the Reproducible sections for some *MathLinks* Student Packets and also in some Packet Resource sections (Essential Skills and Nonroutine Problems). Three examples are given in this file to help students get used to the routine (two non-mathematical). A template follows for making up puzzles of your own.

Why: Big Square Puzzles engage students as they practice skills. Students can talk about strategies and solutions in a safe environment while solving the puzzle.

Prepare ahead:
- Reproduce a Big Square Puzzle – cut up one puzzle per pair or small group.
- Or ask students who arrive early to class or finish work early to cut up puzzle pieces and paperclip them together so they will be ready for use. The intact Reproducible page acts as an answer key.

Launch the activity: Use the Big Square Puzzles to establish routines and practice skills from prior grades. To solve a puzzle, ask students to divide up all pieces among their groups. Of the given examples, the first matches pairs of famous cartoon characters from the same movie/show/comic. For the next two, states and their capitals are matched. For the final two, students look for equivalent numerical expressions to match. In many puzzles, students will find that there may be more than one match, but there is only one way to complete each of these puzzles. While students are solving the puzzle, circulate and give each group a glue stick or a strip of tape to use to tape pieces together upon completion.

Note that a few packets have these puzzles in triangle form (Big Triangle Puzzles), but the activities work the same.

Accountability/Follow-up Ideas:
- Ask students to show a completed puzzle as an "exit slip."
- Ask them to tape a completed puzzle together. Use puzzles as room displays.
- Give extra credit to groups that complete a puzzle correctly.
- Ask students to create their own puzzles for others to assemble using a paper template or online software. One possibility is: https://download.cnet.com/Formulator-Tarsia/3000-2051_4-10584458.html

BIG SQUARE PUZZLE: STATES AND CAPITALS 1

The puzzle is a 4 × 4 grid of square tiles. Each tile has a word along each of its four edges (states and capitals). The edge labels are listed below, tile by tile.

Tile	Top edge	Left edge	Right edge	Bottom edge
Row 1, Col 1	—	—	California	Olympia
Row 1, Col 2	—	Sacramento	Florida	Wyoming
Row 1, Col 3	—	Tallahassee	Illinois	Denver
Row 1, Col 4	—	Springfield	—	Kansas
Row 2, Col 1	Washington	—	Delaware	Pierre
Row 2, Col 2	Cheyenne	Dover	Maine	Alaska
Row 2, Col 3	Colorado	Augusta	Georgia	Des Moines
Row 2, Col 4	Topeka	Atlanta	—	Missouri
Row 3, Col 1	South Dakota	—	Trenton	Salem
Row 3, Col 2	Juneau	New Jersey	Helena	Connecticut
Row 3, Col 3	Iowa	Montana	Jackson	Honolulu
Row 3, Col 4	Jefferson City	Mississippi	—	Michigan
Row 4, Col 1	Oregon	—	Columbus	—
Row 4, Col 2	Hartford	Ohio	Santa Fe	—
Row 4, Col 3	Hawaii	New Mexico	Lincoln	—
Row 4, Col 4	Lansing	Nebraska	—	—

BIG SQUARE PUZZLE: STATES AND CAPITALS 2

Oklahoma — Oregon / Alabama / Austin	**Los Angeles** — Montgomery / Arizona / Utah	**Oklahoma City** — Phoenix / Idaho / Baton Rouge	**Providence** — Boise / Louisville / Indiana
Texas — Portland / New Hampshire / Raleigh	**Salt Lake City** — Concord / North Dakota / Virginia	**Louisiana** — Bismarck / South Carolina / Little Rock	**Indianapolis** — Columbia / Rhode Island / Kentucky
North Carolina — New Orleans / Harrisburg / Albany	**Richmond** — Pennsylvania / Montpelier / West Virginia	**Arkansas** — Vermont / Nashville / Madison	**Frankfort** — Tennessee / Las Vegas / Massachusetts
New York — New York City / Sacramento / Minneapolis	**Charleston** — California / Carson City / Annapolis	**Wisconsin** — Nevada / St. Paul / Maryland	**Boston** — Minnesota / Birmingham / Baltimore

0.125 $\frac{1}{8}$ 0.900	$\frac{8}{9}$ 0.5	0.75 0.875	0.50 $\frac{1}{2}$ $\frac{3}{25}$ 0.12
$\frac{9}{10}$ 0.75 $\frac{5}{8}$	$\frac{12}{24}$ $\frac{3}{4}$ 0.2	$\frac{10}{9}$ 0.6 $\frac{1}{2}$	$\frac{7}{8}$ $\frac{4}{5}$ 0.8 0.06
0.625 0.20 0.75	$\frac{1}{5}$ $\frac{1}{5}$ $\frac{150}{1000}$	0.5 0.8 $\frac{4}{5}$ $\frac{4}{5}$	$\frac{6}{100}$ 0.14 $\frac{7}{50}$ 1
$\frac{3}{4}$ 0.4	0.15 $\frac{2}{5}$ 0.375	0.8 $\frac{3}{8}$	$\frac{4}{4}$ 0.10 $\frac{1}{10}$

BIG SQUARE PUZZLE: _____