WHAT IS CLAIMED IS:

1. A children's puzzle, comprising:

a rigid frame having two opposite broad sides defining a thickness therebetween; and

a set of removable, rigid, non-interlocking pieces each having a flat bottom surface, at least three of the pieces having different perimeter shapes;

wherein exactly two of the pieces of the set are of identical perimeter shape and size;

wherein each broad side of the rigid frame defines multiple recesses therein, each recess surrounded by one or more elevated surfaces of the rigid frame, at least one of the recesses on each of the two opposite broad sides of the rigid frame configured to loosely contain multiple pieces of the set;

wherein the recesses of each of the broad sides of the rigid frame are sized to simultaneously accommodate all of the pieces of the set;

wherein the recesses of the two opposite broad sides of the rigid frame are arranged differently, so as to form respective arrangements of the pieces of the set when accommodated in the recesses; and

wherein the pieces of the set and the recesses of each of the two opposite broad sides of the rigid frame are configured such that the pieces, as accommodated, are retained in the recesses only by gravity.

2. The children's puzzle of claim 1, wherein at least some of the pieces of the set each have a flat top surface opposite the bottom surface, the top and bottom surfaces defining a thickness therebetween.

3. The children's puzzle of claim 2, wherein the recesses of each of the broad sides of the rigid frame are sized to simultaneously accommodate all of the pieces of the set with the bottom surfaces of the pieces against the rigid frame.

4. The children's puzzle of claim 2, wherein the flat top surface is flat across its entire extent and void of any recess or protrusion.

5. The children's puzzle of claim 2, wherein for at least one of the pieces with a flat top surface the top surface is smaller than the bottom surface.

6. The children's puzzle of claim 5, wherein the set of pieces includes a piece with a bottom surface identical in size and shape to the top surface of the piece with the top surface smaller than the bottom surface.

7. The children's puzzle of claim 1, wherein at least one of the pieces is non-planar on a side opposite the bottom surface.

8. The children's puzzle of claim 7, wherein the recesses on one of the two opposite sides of the rigid frame are sized to simultaneously accommodate all of the pieces of the set with the bottom surface of the non-planar piece extending away from the rigid frame.

9. The children's puzzle of claim 1, wherein the rigid frame is void of any passages connecting recesses on opposite sides of the broad sides.

10. The children's puzzle of claim 1, wherein the bottom surface of each piece is flat across its entire extent and void of any recess or protrusion.

11. The children's puzzle of claim 1, wherein the children's puzzle is constructed of wood.

12. The children's puzzle of claim 1, wherein the non-recessed surface of the rigid frame displays graphics associated with the respective arrangements of the pieces.

13. The children's puzzle of claim 12, wherein the recesses are each bounded by bottom surfaces displaying graphics.

14. The children's puzzle of claim 1, wherein the pieces of the set are of different colors.

15. The children's puzzle of claim 1, wherein on at least one of the broad sides of the rigid frame the recesses extend to a greater depth from the non-recessed surface of the rigid frame in one region of the broad side of the rigid frame than in another region of the broad side of the rigid frame.

16. The children's puzzle of claim 1, wherein the pieces and recesses are configured such that, as accommodated in the recesses, the pieces extend above the non-recessed surface surrounding the recesses.

17. The children's puzzle of claim 1, wherein at least one piece of the set has a round perimeter.

18. The children's puzzle of claim 1, wherein at least one recess of each side of the rigid frame accommodates only a single piece of the set.

19. The children's puzzle of claim 1, wherein the two opposite broad sides of the rigid frame are parallel.