STRUCTURES
ACTIVITIES:

1. LOADS

1.1. Types of forces in frame structures.

Crossword

Across:
2  This kind of force tends to “squash”
3  This kind of force tends to “twist”
5  This kind of force tends to “bend”

Down:
1  This kind of force tends to “stretch”
4  This kind of force tends to “cut”

1.2. Write the force represented in each graphic.

1. ............................................ 2. ............................................
3. ............................................ 4. ............................................

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1.3. Look at the following pictures and identify what kind of force or load is being done.

1. ........................................ 2. ........................................

3. ........................................ 4. ........................................

2. STRUCTURAL ELEMENTS.

2.1. Write the name of the structural elements shown below.

1. ........................................ 2. ........................................

3. ........................................ 4. ........................................
2.2. Join the structural element with the representative picture and the right definition.

**Columns**
- The weight is carried down along two curving paths.

**Beams**
- Long thin piece of metal supporting a part of a building or structure.

**Arches**
- These are vertical elements designed to support horizontal loads and transmit the forces to the ground.

**Struts**
- These are horizontal elements designed to support bending, produced by vertical forces.
3. TYPES OF STRUCTURES.

3.1. Find the five types of structures shown in class.

3.2. Join the type of structure with the right definition.

<table>
<thead>
<tr>
<th>Mass</th>
<th>These are made from many small parts (called members), joined together.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell</td>
<td>Made by natural means</td>
</tr>
<tr>
<td>Natural</td>
<td>Solid structures which rely on their own weight to resist loads.</td>
</tr>
<tr>
<td>Frame</td>
<td>Man-Made</td>
</tr>
<tr>
<td>Manufactured</td>
<td>Made or assembled to make one piece, usually thin sheet material with ridges or curves to make it stronger.</td>
</tr>
</tbody>
</table>
3.3. Write the type of structure (natural or manufactured).

1.  ........................................  2.  ........................................

3.  ........................................  4.  ........................................

3.4. Match the pictures on the right side with the type of structure correspondent on the left side.

FRAME

SHELL

MASSIVE

SHELL

FRAME
4. ANALYSING STRUCTURES.

4.1. Write the type of load in each case.

4.2. What kind of load is acting on each member of this structure?

4.2. Answer the following questions.