Name: _____ Group: _____

SUPPORT DOCUMENT

CREATING THE CONTEXT

PART A

I ask myself questions

1. What is a design plan?

_____

_____

2. What is a technical diagram?

_____

_____

3. What is a mechanical constraint?

_____

_____

4. Name five mechanical constraints and draw their symbols.

Constraint	Symbol

Name: _____ Group: _____

SUPPORT DOCUMENT

CREATING THE CONTEXT (*continued*)

PART A

5. What are the consequences of exposing materials to mechanical constraints of increasing intensity?

6. What is a mechanical property?

7. Give a few examples of mechanical properties.

8. Is air comprised of compressible or incompressible fluid?

9. The pressure of this fluid depends on which factor?

10. How can you increase air pressure in a container?

I must

11. In your opinion, what is the goal of the problem to solve?

Name: _____ Group: _____

SUPPORT DOCUMENT

CREATING THE CONTEXT (*continued*)

PART A

I think

12. When building an object to absorb vibrations, what mechanical properties should the materials possess? Justify your answer.

13. Among the materials and parts that possess these mechanical properties, name those that you could use to build the anti-vibration support.

14. Which materials or parts could you use to build the air pressure system?

Name: _____ Group:_____

SUPPORT DOCUMENT

CREATING THE CONTEXT (*continued*)

PART A

I think

15. In your opinion, what is the most appropriate design solution for the anti-vibration support? Draw the support's design plan, indicating the following information:
- the names of the parts
- the constraints to which the materials will be subjected
- the symbols describing the support's movements when in operation

Reflection

	Yes	No
• Does my design plan meet the specifications?	☐	☐
• Do I fully understand the scientific and technological concepts involved in the problem to solve?	☐	☐

Name: _____ Group: _____

SUPPORT DOCUMENT

PLANNING THE PROBLEM SOLVING

PART A

I plan

1. Draw the technical diagram of the anti-vibration support prototype. Don't forget to indicate the following information on the diagram:

- the names of the parts
- the materials
- the linking components
- the types of guides (if applicable)
- any other useful information for building the prototype

Name: _____ Group: _____

SUPPORT DOCUMENT

PLANNING THE PROBLEM SOLVING (*continued)*

PART A

I plan

2. Compile a list of materials needed to construct the anti-vibration support. Specify the quantity of each item.

3. Compile a list of equipment needed to construct the anti-vibration support.

Reflection

	Yes	No
Have I considered other possibilities for constructing the anti-vibration support?	☐	☐

Teacher's approval

Name: _____ Group: _____

SUPPORT DOCUMENT

INITIATING THE PROBLEM SOLVING

PART A

I design

1. Make a table for recording the results obtained by the prototype during the efficiency test.

2. Construct the prototype of your anti-vibration support according to the technical diagram. If you modify your plan of action, indicate these changes on the technical diagram as well as on the lists of materials and equipment. Be sure to make note of all modifications.

3. What safety rules did you follow when making the prototype of your anti-vibration support?

_____

_____

_____

_____

Reflection

	Yes	No
Did I record and justify all the modifications made to my plan of action?	☐	☐

Teacher's approval _____

Name: _____ Group: _____

SUPPORT DOCUMENT

THE FINAL TEST

PART A

I verify

After recording the results obtained by your anti-vibration support prototype during the efficiency test, answer the following questions:

1. Did the prototype meet the overall purpose of the anti-vibration support? Explain your answer.

_____

_____

_____

2. Did the prototype meet all the constraints in the specifications? If not, explain your answer.

_____

_____

_____

3. Did you make any modifications to the plan of action? Explain your answer.

_____

_____

_____

4. Did you encounter any difficulties when constructing your prototype? If yes, what were they?

_____

_____

_____

5. What are the prototype's strengths?

_____

_____

_____

6. What are the prototype's weaknesses?

_____

_____

_____

Name: _____ Group: _____

SUPPORT DOCUMENT

THE FINAL TEST (*continued*)

PART A

7. What improvements would you make to the construction of your anti-vibration support prototype?

8. Will you recommend the construction of your prototype? Explain your answer.

9. Based on the results obtained during the efficiency test, how will you respond to Hi-Tech? Write your message.

Name: _____ Group: _____

SUPPORT DOCUMENT

CREATING THE CONTEXT

PART B

I ask myself questions

1. What is the purpose of the technological analysis?

_____

_____

2. For whom are the results of the technological analysis intended?

_____

_____

3. What questions should guide your technological analysis of the anti-vibration support prototype?

_____

_____

_____

_____

_____

_____

_____

I must

4. Restate the goal of this case study.

_____

_____

_____

I think

5. How do you think you could improve the prototype of the anti-vibration support? Justify your answer.

_____

_____

_____

_____

Name: _____ Group: _____

SUPPORT DOCUMENT

CREATING THE CONTEXT (*continued*)

PART B

What I know and what I must find out

6. Write down the information you already have and what you must find out.

What I know . . .	What I must find out . . .

I prepare my work

7. Where and how will you find the information needed to allow you to suggest improvements to the anti-vibration support prototype?

8. List in chronological order the main steps of your work.

Reflection

	Yes	No
Do I fully understand what I need to do?	☐	☐

Name: _____ Group:_____

SUPPORT DOCUMENT

GATHERING INFORMATION

PART B

I do research

1. What is a force?

_____

_____

_____

2. Name and draw the four symbols of movements.

Movement	Symbol

3. Name and draw three guides used in building technical objects.

Guide	Symbol

Name: _____ Group: _____

SUPPORT DOCUMENT

GATHERING INFORMATION (*continued*)

PART B

I analyze my results

To answer the following questions, examine the object being analyzed.

4. What is the function of the anti-vibration support?

_____

_____

_____

_____

5. Does the prototype being analyzed meet the specifications? Justify your answer.

_____

_____

_____

_____

6. On the next page, draw the design plan for the anti-vibration support. Be sure to indicate the following information:

- ☐ the names of the parts
- ☐ the forces involved
- ☐ the symbols of the movements

7. Draw the technical diagram for the anti-vibration support on the page after the next. Be sure to indicate the following information:

- ☐ the names and shapes of the parts
- ☐ the materials used to construct the prototype
- ☐ the linking components
- ☐ the symbols for the guides

Name: _____ Group:_____

SUPPORT DOCUMENT

GATHERING INFORMATION (*continued*) PART B

I analyze my results (*continued*)

Design plan

Name: _____ Group: _____

SUPPORT DOCUMENT

GATHERING INFORMATION (*continued*) PART B

I analyze my results (*continued*)

Technical diagram

Reflection

	Yes	No
Do I fully understand the scientific and technological concepts involved in this case study?	☐	☐

Name: _____ Group: _____

SUPPORT DOCUMENT

COMPLETING THE CASE STUDY

PART B

I make suggestions

1. Name three strengths of the anti-vibration support you analyzed.

2. Name three weaknesses of the anti-vibration support you analyzed.

3. Name three improvements that could be made to the anti-vibration support prototype.

Reflection

	Yes	No
Have I considered other solutions?	☐	☐

Name: _____ Group: _____

SUPPORT DOCUMENT

VALIDATING THE CASE STUDY

PART B

I justify my approach

Justify each suggestion for improving the anti-vibration support prototype.