CALVIN & HOBBES By Bill Watterson

WHAT AM I GOING TO DO ABOUT THIS REPORT ON BATS? YOU'VE GOT TO HELP ME, HOBBES!

OK... UM, FIRST LET'S MAKE A LIST OF WHAT WE KNOW.

YEAH! THAT'S A GOOD WAY TO START! GREAT!

NUMBER ONE: WHAT ARE BATS?

THEY'RE BUGS, AREN'T THEY? YEAH, PUT THAT DOWN.

#1 BATS = BUGS

ARE YOU SURE?

THEY FLY, RIGHT? THEY'RE UGLY AND HAIRY, RIGHT? C'MON, THIS IS TAKING ALL DAY!

CALVIN & HOBBES By Bill Watterson

I THINK WE'VE GOT ENOUGH INFORMATION NOW, DON'T YOU?

ALL WE HAVE IS ONE "FACT" YOU MADE UP.

THAT'S PLENTY. BY THE TIME WE ADD AN INTRODUCTION, A FEW ILLUSTRATIONS, AND A CONCLUSION, IT WILL LOOK LIKE A GRADUATE THESIS.

BESIDES, I'VE GOT A SECRET WEAPON THAT WILL GUARANTEE ME A GOOD GRADE! NO TEACHER CAN RESIST THIS!

A CLEAR PLASTIC BINDER! PRETTY PROFESSIONAL LOOKING, EH?

I DON'T WANT CO-AUTHOR CREDIT ON THIS, OK?
Group Investigation (Sharan & Hertz-Lazarowitz, 1980; Sharan & Sharan, 1990) is a cooperative structure that enables students to plan and carry out a course of study. This includes identifying a topic for investigation, planning and carrying out the investigation, and preparing a final presentation. This structure is a more complex one in that students are involved in multifaceted learning tasks that demand greater student autonomy and group self-direction.

The following pages describe the six stages in the Group Investigation process:

1. Grouping
2. Planning
3. Investigating
4. Organizing
5. Presenting
6. Evaluating

How might you utilize Group Investigation in your teaching? What adaptations would you make?

B. Bennett, C. Rolheiser, L. Stevahn
Cooperative Learning: Where Heart Meets Mind
Group Investigation

Stage 1: Grouping

Identifying the topic for investigation and organizing the students into research groups

Step 1: Present the Topic

- Present a multi-faceted topic to the class which will trigger a variety of reactions. Present the topic as a question to define scope and set the tone of the inquiry (e.g., "What can we learn from a study of pioneer life in Upper Canada?" or "What can we learn about our culture through media?")
- Have students scan a variety of resources (films, texts, picture books, magazines, articles, etc.) to stimulate inquiry.

Step 2: Clarify the Topic

- The class compiles a list of questions for group inquiry. A variety of methods can be used, including:
  a) Whole class – Students raise questions they would like to investigate and compile a list.
  b) Small group – In groups of four students record ideas for investigation and report to the whole class. A class discussion of all lists results in one shared list.
  c) Individual – Students write down their own questions and progress with their planning to larger groups (e.g., pairs, quartets). Questions are compared at each step and repetition eliminated until a single list is compiled.

Step 3: Identify Sub-topics

- The list of questions compiled by the class are classified into categories. The categories become the sub-topics for the group investigation.

Step 4: Form Investigation Groups

- Students select the sub-topic of their choice and form groups accordingly. If a large group forms around a popular sub-topic, that group may be divided to limit numbers. Although student choice of inquiry topics is paramount, teachers may also need to consider heterogeneity of groups.
Group Investigation

Stage 2: Planning

Group planning for investigation

Step 1: Clarify the Task
- Each group explores its sub-topic and formulates a researchable problem. Focus questions are developed to outline the scope of the inquiry.

Step 2: Develop an Action Plan
- Each group plans a course of action by:
  a) deciding what aspects of the sub-topic are to be investigated by each group member (e.g., will each member investigate a different aspect or will members investigate in pairs?);
  b) establishing individual deadlines for reporting back to the group;
  c) determining the resources needed to carry out the task;
  d) re-examining the original plan to consider alternatives if group members are not happy;
  e) completing a worksheet (see next page) that structures the planning stage and records all group members' progress;
  f) determining job responsibilities, including materials manager, coordinator of group discussions, recorder for whole class reporting, worksheet and steering committee representative. This last role involves hearing other group's reporting plans and helping to schedule final presentations.
# Planning Sheet for Group Investigation

**Research Topic:**
State the group investigation sub-topic in question form.

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**Group Members and Roles:**
Coordinator, Recorder, Resource Person, Steering Committee, etc.

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<tr>
<td>2.</td>
<td></td>
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<tr>
<td>3.</td>
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<tr>
<td>4.</td>
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</tbody>
</table>

**Specific Group Research Assignments:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Specific Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
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<tr>
<td>2.</td>
<td></td>
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<tr>
<td>3.</td>
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<td>4.</td>
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</tbody>
</table>

**Resources:**

A. Books and Documents:

B. People:

C. Sites, Artifacts, and Audio-Visual:

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(Bob Walker, 1990, Durham Board of Education, Oshawa, Ontario)
Group Investigation

Stage 3: Investigating

Carrying out the investigation

Step 1: Prepare a Daily Plan
- Group members complete an action plan sheet for each investigation day (see next page).

Step 2: Research the Sub-topic
- Group members gather information from a variety of sources.

Step 3: Analyze and Evaluate the Data
- Group members assess the relevance of the collected data relative to their specific research topic.

Step 4: Apply the Data
- Group members apply their share of new knowledge to "solving" the group research problem.
Our Group’s Daily Investigation Action Plan

<table>
<thead>
<tr>
<th>Date:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Plan:</td>
<td>Name</td>
<td>Action</td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
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<tr>
<td>3.</td>
<td></td>
<td></td>
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<tr>
<td>4.</td>
<td></td>
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</tbody>
</table>

Possible Action Plan Ideas
- Researching in the Resource Center
- Summarizing notes on a visit to a site
- Interviewing a resource person
- Reading a relevant article
- Viewing a specific audiovisual resource
- Sharing information
- Analyzing and evaluating data collected
- Comparing the findings of group members
- Discussing conclusions
- Assisting a team member
- Writing an inter-group summary
- Other...

(Rob Walker, 1990, Durham Board of Education, Oshawa, Ontario)
Group Investigation

Stage 4: Organizing

Preparing for a Final Report

Step 1: Select the Report Vehicle
- The group, in conjunction with the teacher, decides the presentation format to be used to share findings with the rest of the class. Possible presentation formats include:
  - exhibits
  - learning centers
  - guided tours
  - slide presentations
  - models
  - written reports
  - dramatic presentations
  - other...

Step 2: Plan the Report
- Group members discuss individual roles in the final report.
- Group members complete a report to the steering committee upon completion of their presentation plan (see next page).

Step 3: Construct the Report
- Group members complete individual assignments or responsibilities for the final presentation.
Report to Steering Committee

Group Research Topic:

Group Members:

1. 
2. 
3. 
4. 

Presentation Format:

Role of Each Group Member in the Presentation:

1. 
2. 
3. 
4. 

Request for Special Materials:

Reporting Schedule (to be completed by Steering Committee):

[Bob Walker. 1990, Durham Board of Education, Oshawa, Ontario]
Group Investigation

Stage 5: Presenting

Presenting the Final Report

Step 1: Present the Report
- Groups present their final reports to the class in accordance with a posted schedule.

Step 2: React to the Report
- Members of the other groups (audience) voice their reactions to what they saw and heard.
Stage 6: Evaluating

Assessing the research process and product

Step 1: Establish the Criteria
- The teacher and students establish the criteria for evaluation of the group investigation by addressing the following questions:
  - What are we looking for in an effective group investigation? (criteria for process)
  - What are we looking for in the presentation of the product? (criteria for product).

Step 2: Clarify the Components
- Clarification might include:
  a) teacher and student roles in the evaluation process
  b) plans for formative and summative evaluation
  c) the weighting between evaluation of process and product
  d) the ratio of individual to group marks
  e) how and why anecdotal and numerical evaluation instruments will be used.

Step 3: Check for Understanding
- Be certain that the students understand at the outset how they are to be evaluated in the group investigation activity.
- Have the students complete an Evaluation Sheet (see page 233) to check for understanding of the components to be used.
Group Investigation

The Student Role in Evaluating Process

- Group presentation
- Individual presentation role
- Group research report
- Individual research report
- The Teacher's Role in Evaluating Process

- Group evaluation
- Self-evaluation

The Student Role in Evaluating Process

- Observation/Check lists
- Group data research folders
- Individual data research folders
- Report to the Steering Committee
- Daily investigation action plans
- Investigation Planning worksheet for Group
**Evaluation**

*How will I be evaluated in the Group Investigation?*

<table>
<thead>
<tr>
<th>... of the Process</th>
<th>(Weighting = %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible Components:</td>
<td>Check if Included</td>
</tr>
<tr>
<td>* The Planning Worksheet for Group Investigation</td>
<td></td>
</tr>
<tr>
<td>* The Daily Investigation Action Plan</td>
<td></td>
</tr>
<tr>
<td>* Report to the Steering Committee</td>
<td></td>
</tr>
<tr>
<td>* Individual Research Folders</td>
<td></td>
</tr>
<tr>
<td>* A Group Research Folder</td>
<td></td>
</tr>
<tr>
<td>* Teacher Observation of the Group</td>
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<tr>
<td>* Teacher Observation of Individuals in the Group</td>
<td></td>
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<tr>
<td>* Group Evaluation</td>
<td></td>
</tr>
<tr>
<td>* Self-Evaluation</td>
<td></td>
</tr>
<tr>
<td>* Other...</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>... of the Product</th>
<th>(Weighting = %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible Components:</td>
<td>Check if Included</td>
</tr>
<tr>
<td>* Individual Research Report</td>
<td></td>
</tr>
<tr>
<td>* Group Research Report</td>
<td></td>
</tr>
<tr>
<td>* Individual Presentation Role</td>
<td></td>
</tr>
<tr>
<td>* Group Presentation</td>
<td></td>
</tr>
<tr>
<td>* Group Self-Evaluation</td>
<td></td>
</tr>
<tr>
<td>* Peer Evaluation of Other Group Presentations</td>
<td></td>
</tr>
<tr>
<td>* Other...</td>
<td></td>
</tr>
</tbody>
</table>

(Bob Walker, 1990, Durham Board of Education, Oshawa, Ontario)
Group Investigation Evaluation
Process

Name: ____________________________

Sub-topic: _______________________

Group Members: 1. ____________ 3. ____________
2. ____________ 4. ____________

My Component: _______________________

Process Criteria:

What we are hoping to see taking place in our group as we work toward production of our final product:

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

A. How effective were we as a group in meeting the criteria? OR
B. As a group member, how effective was I in meeting the criteria?

A. How can the group improve? OR B. How can I improve?

Group Investigation Evaluation
Product

Name: ________________________________

Sub-topic: ________________________________

Group Members: 1. ___________________________ 3. ___________________________
2. ___________________________ 4. ___________________________

My Component: _______________________________________________________

Product Criteria:

What are we looking for in the presentation of the product?
1. _______________________________________________________________
2. _______________________________________________________________
3. _______________________________________________________________
4. _______________________________________________________________

A. How effective were we as a group in meeting the criteria? OR
B. As a group member, how effective was I in meeting the criteria?

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

A. How can the group improve? OR B. How can I improve?

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

(Bob Walker, 1990, Durham Board of Education, Oshawa, Ontario)

B. Bennett, C. Rolheiser, L. Stevahn
Cooperative Learning: Where Heart Meets Mind
The Johnsons' 5 Basic Elements of Effective Group Work

- Individual Accountability
- Positive Interdependence
- Processing the Group's Academic and Social Effort
- Collaborative Skills
- Face-to-Face Interaction
- Effective Group Work
Collaborative Skills refer to the social, communication, and critical thinking skills the students need to work effectively in groups. The Johnsons refer to this area as social skills; we have labelled the area Collaborative Skills, with social skills being one of the components. We see this as a hierarchical sequence. Communication is hard if one does not have the requisite social skills; and likewise, thinking critically is hard if one has neither the social skills nor communication skills.

Individual Accountability refers to making sure each student in the group is responsible for their own learning and willing to encourage and support the learning of others in the group. This is one of the most important concepts. If a student can hide, or hitchhike off the efforts of others, or take over and do all the work, then the group will not function effectively.

Face-to-Face Interaction refers to setting up the group environment so that it encourages students to interact and dialogue with one another. That means they need to be sitting in groups that are approximately two to four in size, are close enough to one another to easily hear each other’s voices, and see each other’s faces. Obviously a circle or square shape facilitates face-to-face interaction. The larger the group the easier it is for students to hide on the edge of the group. They can escape being responsible or being involved.

Processing refers to reflection, and assessing the group’s efforts both in terms of their academic and collaborative interaction. This metacognitive function is very important. Without it, groups do not develop as effectively over time which negatively impacts social and academic learning. Perkins, in his book Outsmarting IQ explains why reflection is an essential component in developing intelligent behaviour.

Positive Interdependence refers to students working together in supportive (positive) ways and being accountable and caring for one another. Positive Interdependence does not always occur naturally. Accordingly, a teacher can select from a number of ways to increase the chances students will be interdependent in a positive way.

Note that this relates directly to the instructional skill of Sharing the Objective and Purpose of the Lesson. Refer to the research that clarity around objectives has on student learning and disposition towards learning (Marzano, 1999.)
# BEING A GOOD SPORT

To introduce the social skill of Being a Good Sport, use a T-Chart and have the students fill in what you would see and hear if they were being good sports. Process how well they did at the end.

<table>
<thead>
<tr>
<th>Smiling</th>
<th>No put downs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taking turns etc.</td>
<td>encouraging words etc.</td>
</tr>
</tbody>
</table>
BEING A GOOD SPORT

Hear
COOPERATIVE LEARNING TEAM
EVALUATION SHEET
(Complete this form individually)

Team Members: __________________________

____________________________

What was YOUR contribution to the team’s work?

________________________________________________________________________

________________________________________________________________________

How well do you think your TEAM worked together and how might it improve?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

What grade do you think YOU deserve for your work?

________________________________________________________________________

What grade do you think your TEAM deserves?

________________________________________________________________________

Your name: ____________________________________
COOPERATIVE LEARNING TEAM EVALUATION SHEET
(Complete this form as a team)

Team Members: ___________________________ ___________________________

1. Did all of the members of our team contribute ideas?  LOW  HIGH
   1  2  3  4  5

2. Did all of the members of our team listen carefully to the ideas of other team members?  LOW  HIGH
   1  2  3  4  5

3. Did all of the members of our team encourage other members to contribute their thoughts and opinions?  LOW  HIGH
   1  2  3  4  5

4. List three ways that we helped each other learn the material:
   __________________________________________
   __________________________________________
   __________________________________________

5. a) One difficulty our team had was (explain fully):
   __________________________________________
   __________________________________________
   __________________________________________

   b) To resolve this difficulty we could:
   __________________________________________
   __________________________________________
   __________________________________________
What Are Some Possible Cooperative Learning Projects? There is no end to the use of cooperative learning groups in the classroom. Cooperative learning is conducive to all subject areas at all levels from K through 12. Following is an assortment of possible lessons for the cooperative learning mode:

<table>
<thead>
<tr>
<th>History</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a time line for a specific era in U.S. or world history. Each group is assigned a time period.</td>
<td>Use the concept of Readers’ Theater or Literature Circles. Each team can read a book or story, following the Jigsaw method or the Carousel Feedback model. Each group then reports on its story or book.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Math</th>
<th>Biology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have each group create a graph with an x and y axis to simulate a portion of a street map. Different groups may be assigned different cities. Museums, hotels, and restaurants can be plotted by using x and y indicators on the graph.</td>
<td>For a middle school or an intermediate lesson, students investigate the systems that function in the human body. Each group examines a system or a part of the system, with each member assigned a body organ.</td>
</tr>
</tbody>
</table>

**VOICES IN THE CLASSROOM**
Using Cooperative Learning

We were studying agriculture in my fifth-grade class. I had set up cooperative learning groups to explore all aspects of agricultural America. The culminating project was for the students to construct a physical representation of the concept of agriculture. Naturally, most of these representations were farms.

On the day of the presentations, I stood before five perfect projects, one as flashy and shiny as the other. In one particular project, at least 20 farm animals were made out of plaster, not plastic. I picked up the pig, and on the bottom was a price tag: $5.95. I calculated that those animals had cost almost $100. In fact, the entire farm was built with expensive wood, stained and varnished.

One of the students confessed that Jennifer’s father had “helped” with most of the project, and he bought the animals. I was awestruck and speechless. How would I ever be able to grade this project—or the others for that matter?

Each of the projects demonstrated time, energy, creativity, and applicability to the theme. They all received a 100, but Jennifer thought theirs was worth more because it was obviously the best. I learned a valuable lesson that day about parental involvement and the wisdom of establishing a detailed rubric to be given to the students at the outset.

—A wiser teacher
What Are the Disadvantages of Using Cooperative Learning? A teacher should not discount lightly the disadvantages of using cooperative learning, especially the potential of disrupting classroom harmony. In fact, many teachers avoid using this method because of the heavy potential for students to misbehave. However, such misbehavior need not be the case. Some of the disadvantages of using cooperative learning, and possible remedies, follow:

- Placing students in teams is welcoming a social interaction that leads to comedy, loud noise, and off-task behavior.
  - Before the beginning of the lesson, review the procedures to follow for the specific project. Discuss with your students the need for quiet and on-task behaviors, as well as respect for other teams and the class as a whole. Provide clear lines of accountability for students exhibiting disruptive and off-task behaviors. Keep active in the room, moving from group to group to present a physical presence that will help deter such behavior.

- In group work, one or two students may become the leaders and rush ahead to accomplish the tasks. Other members, who cannot keep up, then give up. Quicker members complain that they are doing all the work.
  - This serious flaw in the cooperative learning model can be remedied by assigning each student a specific task for which he or she is responsible. Also, provide clear evaluation rubrics that inform each member of how the final grade will be compiled.

- Sometimes the dynamic of the group simply is not working because of serious personality conflicts. This situation can inhibit the goals and work of the team.
  - Intervene immediately when disruptions occur because of personality conflicts. Try to resolve them through standard conflict management techniques (e.g., talk out the problem, and try to sway perspective). If this approach does not work, consider rearranging the team members.

- When in a cooperative group, students may strike bargains to share each other’s work on a scale that leaves some members doing little.
  - To prevent this situation, (a) provide a clear set of expectations for each group member (e.g., speaker, reporter, researcher) and (b) provide a rubric and an evaluation form that reveals grading levels.

<table>
<thead>
<tr>
<th>TEAM MEMBER</th>
<th>DUTIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recorder</td>
<td>Keeps records of the team’s progress; keeps notes for the presentation</td>
</tr>
<tr>
<td>Reader</td>
<td>Reads directions and notices pertinent to the task</td>
</tr>
<tr>
<td>Manager or timer</td>
<td>Keeps the team on task and on schedule</td>
</tr>
<tr>
<td>Ambassador</td>
<td>Communicates with other teams and the teacher or other resource people such as the librarian</td>
</tr>
<tr>
<td>Researcher</td>
<td>Is responsible for acquiring information in addition to what the team has already found</td>
</tr>
</tbody>
</table>