# The Plight of the African Killer Bees

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RATIONALE:

Social Studies should be a favorite subject for teacher and student. It deals with matters that have great impact on our lives, with ideas about people and their problems. Thus, it sould provide an excellent opportunity for looking at the world and its problems in a variety of creative ways.

The factual components of learning are readily memorized and viewed with some enthusiasm by both teacher and pupil. An example of a factual component of learning is map symbols. In a sense through reading map symbols the pupil can "see" the facts.

What is thinking and in what kind of situations do students "learn to think"? Hilda Taba identifies three cognitive tasks involved in the thinking process: (1) concept formation, (2) interpretation of data, and (3) application. The Plight of the African Killer Bees game is a simulated learning situation which allows students to engage in all three of the cognitive tasks. More specifically it involves organizing information in route to solving a problem about what to do with the African Killer Bees. A description of the game is found below:

The first thinking task is concept formation. To form a concept the student must organize information into a system of classes or groups. Killer Bees provide an opportunity to organize information during the initial phase of the game, map making. For example, in the game there is only one symbol that represents mountains. This symbol differs from the one used to represent the rainfall or wind direction. It stands only for those things which possess those particular properties that can be labeled as mountains.

The second cognitive task described by Taba is interpretation of data. Interpretation involves relating various kinds of information to form generalizations and determine cause and effect relationships. This task is accomplished in the game by having each student reproduce on their own sheets of paper the given map symbols on each card.

The final step in these cognitive tasks is for the student to be able to apply what he knows, facts and generalizations, to problem solving. The students, each playing a role, work in their group with four others to solve a problem concerning the bees. They must use their knowledge of the map and the generalizations they have formed in the previous steps on the game to reach a decision upon which all members of the group can agree.

The Plight of the African Killer Bees concerns the United States and "what to do" about the African Killer Bees which are moving north from South Africa 200 miles per year. Pupils who take part in the simulation are asked first to learn the physical characteristics of South Africa and North America and then to apply this knowledge in solving the problem of the probable invasion by these bees into North America.

PHASE I

The simulation is implemented by dividing the class into groups of five persons each. A sociogram can be used to decide the best balance for each groups. The groups represent people who have been called to a meeting because of their knowledge and interest in the Bees. Children are assigned to play the roles of these people. The roles are described on separate cards.

The simulation starts with the group compiling factual knowledge about the area in which the Bees are located in South Africa. This knowledge is contained on five (5) cards - one card for each group member. Each person shows his card to the rest of the group (cards of this type

present rainfall, temperature, locations of streams, outline maps on their worksheet, etc.) and reads what is on it. Each group member then duplicates the knowledge presented on his master map.

Materials used in the game to create the maps are crayolas or colored pencils. All members of the group now have the same complete information.

PHASE II

The second part of the simulation involves the group deciding what to do about the Bees and deciding where they think is a good place to stop the bees by basing their decision on the information that they have on their maps. The discussion of the mountains, rainfall, and other hazzards by the members of the group usually leads to valuable information being shared by all members.

PHASE III

In the third part of the game the problem to be resolved in encountered. The bees are a hazzard to the life cycles. Taking into consideration the bees are going in a direction northwest through Columbia at a rate of 200 miles per year, the group decides where they think some good places are in order to stop the bees. It is known that Killer Bees produce more honey which make them an additional source of income.

Every member uses his role card to define who he represents at this meeting. Maximum time should be allowed for the discussion until a group decision is reached and the reasons are clearly set down for the decisions that are made.

At the end of this discussion, groups then report to the class-at-large.

# INTENDED LEARNINGS FROM THE SIMULATION

## MAP SYMBOLS:

Students learn the meaning of map symbols at the same time they learn to use them. The symbols appear on the map as being related to each other.

## SOCIAL STRUCTURE AND ITS RELATION TO DECISION MAKING

The group, through its role playing cards, is led to see that different people according to their interests and occupation have different opinions about the same problem. These differences of opinion must be resolved in order to reach a decision. All of these geographical features must be taken into consideration in order to make an intelligent decision about the problem concerning the bees.

## GROUP PROCESS: GROUP DECISION MAKING

The group learns to make a decision solely on the data at hand. This makes the process independent of the teacher and thereby strengthens independence in the group and the individual. In addition to knowledge, skills of persuasion, negotiation, compromise, leadership, blocking and facilitation are experienced.

# THE PLIGHT OF THE KILLER BEES

Name_____Date_____Group No._____

DIRECTIONS: This is a fact learning and decision making game about Bees and its possible effect on our environment. Please do these tasks in this order.

1. Read the history of The Plight of the Killer Bees.

## HISTORY OF THE PLIGHT OF THE KILLER BEES

Twenty six queen of a very ferocious race of honeybees from Africa, Ape's mellifera adansonil, has escaped in 1957 from the site of the genetics experiment near Sao Paulo, Brazil. These Honeybees are not native to the Americas but over the years Brazilians living in the temperate south had imported gentler European bees. The African Bees quickly intermixed with them and procreated a fierce new race. Since then the African hybrids have spread throughout much of South America. Now advancing northward about two hundred miles a year, Brazilian bees threaten to invade Central American and then Mexico, and ultimately the United States. The Bee attacks as violent as the one Bianca and I experienced are isolated incidents. Yet at least 150 people and coutless animals in Brazil have died in such encounters.

The story begins ages ago, scientists speculate, as honeybees migrated westward from Asia into Europe and Africa, where they met different destinies. Southern Europe's mild climate and later, man's beekeeping practices, fostered the gentler strains.

The bees that pushed south into Africa, however, had to struggle with a much harsher inviroment, hotter and drier. They remained nomads, an entire colony following the flowers and nesting in a crevice or in the hollow of a boabab tree. Their honey drew predators, including man, that destroyed the colonies they robbed. Only the most unapproachable colonies were likely to survive.

The African honeybees developed into a nervous, easily provoked race. They have a marked ability to communicate alarm by releasing chemical secretions called pheromones. The odor often triggers an explosive response throughout the colony. African bees are no more venomous than others; they simply sting in larger numbers and a few hundred stings are enough to kill anyone unable to outrun the bees.

Although highly aggressive, the Africanized bees possess one outstanding virtue: They also produce large amounts of honey.

(Taken from the National Geographic Vol.149, No. 4, April 1976)

The Bees are one their way north from Brazil to the United States. What will become of our country? Where will the bees attack and what will happen to them?

2. Each person in the group take a card from the brown envelope and read it as you show it to the group. Begin with the card numbered one and do the cards in order. Each member copy in crayola these symbols on the blank map given in this game.

## PROBLEM I

(After you have completed putting all the symbols on your own map.)

Since the Bees are going north toward the United States look at your maps and as a group decide where you think some good places might be to stop the Bees. Record in Writing all the reasons for deciding as you did. Take into consideration the mountains, weather conditions, and wind directions on your map.

REASONS

1. _____

_____

_____

2. _____

_____

_____

## PROBLEM II

Recently a man by the ame of Mr. Bumble, a Biologist, has learned of the Bees and has made plans to protect them from extinction. Bees are very valuable economically be ause they produce large amounts of honey, which would make Mr. Bumble a very rich man. However, the United Nations Committee on World Protection has learned of Mr. Bumble's plan and has called a meeting of Mr. Bumble and other people who are interested in or have information about the Bees.

This meeting is being held at the United Nations building in New York City to decide if Mr. Bumble should be allowed to take action to preserve the Bees or what other possible action might be taken to prevent the Bees from creating a world disaster. You are one of the five people at this important meeting.

These questions may help you in your discussion of the problem.

1. What could happen if Mr. Bumble is allowed to salvage the Bees?

2. Is it a good idea to try to save the Bees? Why or why not?

3. What could happen if the Bees are allowed to continue in their present path?

4. Does it make any difference which country is in charge of what happens to the Bees?

Write below what you did about the problem and why you decided the way you did. The group must agree on all decisions.

_____

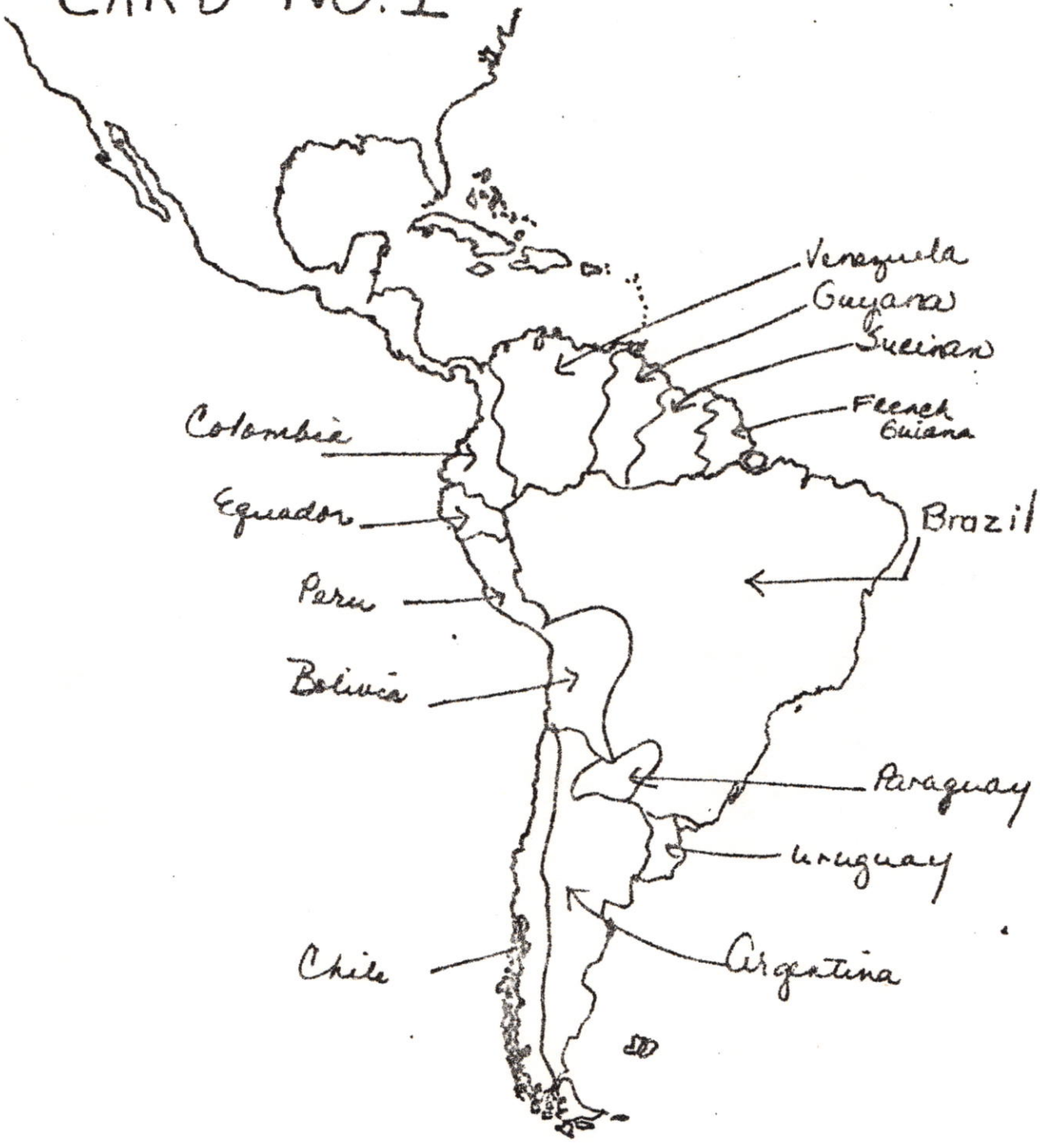
_____

_____

_____

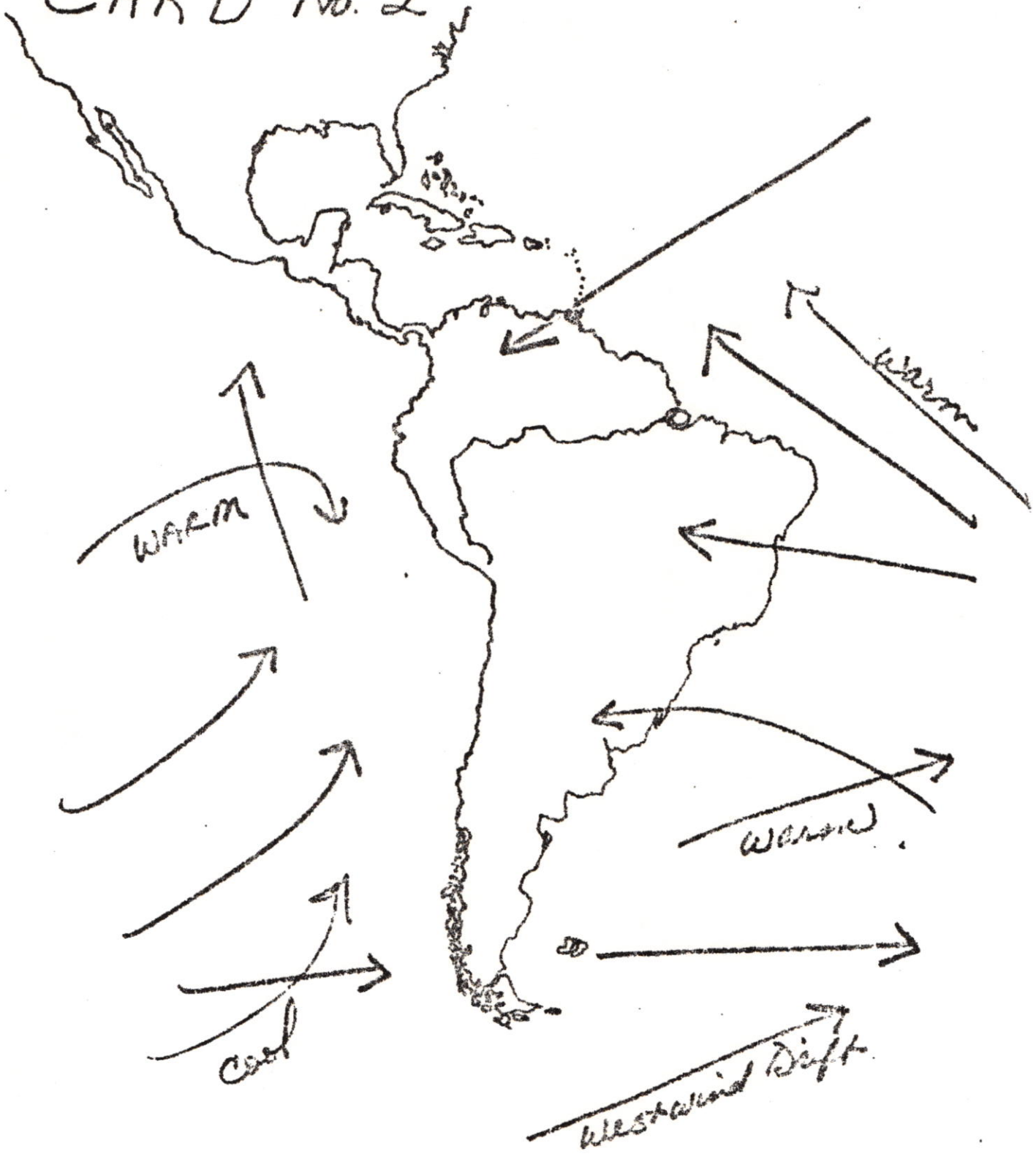
COUNTRIES

CARD NO. 1




_____ Countries in Black

# CARD No. 2

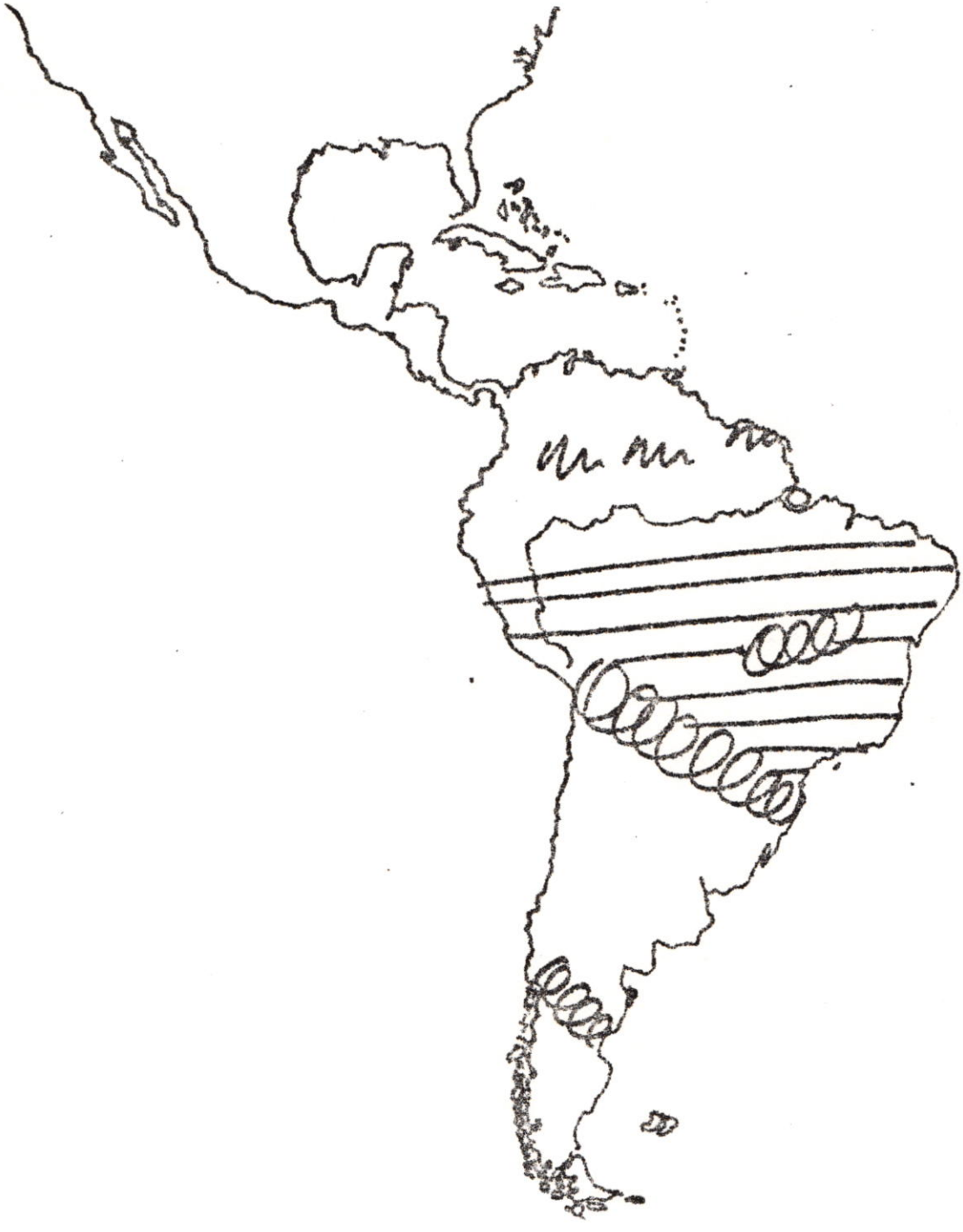



Wind direction ⟶

Wind Current ⟶

Rainfall

CARD No. 3



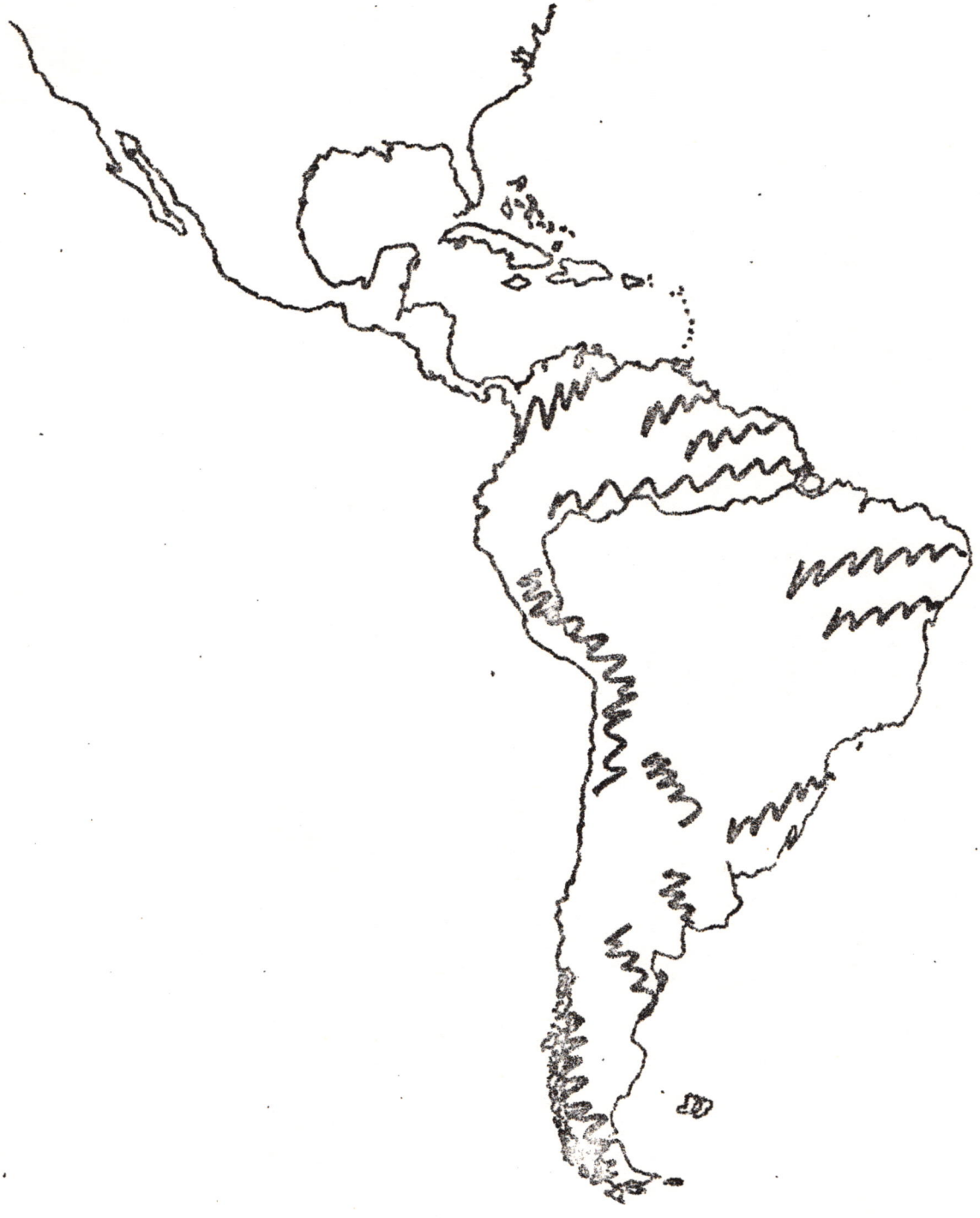
over 40 inches

5 to 10 inches

10 to 20 inches

CARD NO#4

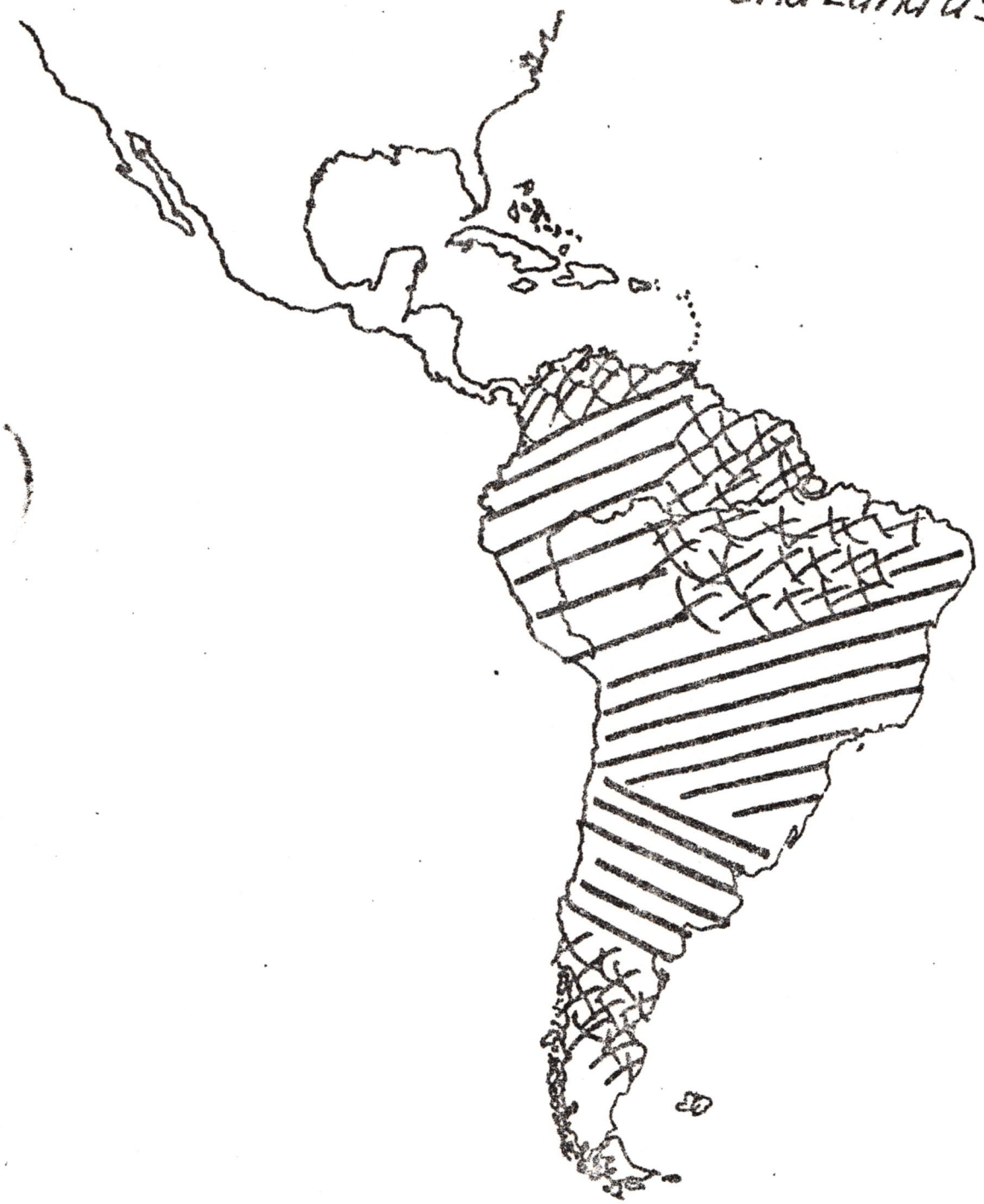
Mountain Ranges



www Mountain Ranges

CARD NO #5

Vegetation and Land use



XXXX — Forest

//// — FARMLAND

Desert

CARD #6

Combination of all map symbols