

## **“How Big is Africa?” Curriculum Guide**

Developed by Deborah Johnston with Barbara Brown for the African Studies Center,  
Boston University, 1998



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Teachers may select from any or all of the following six lessons to help provide educational context for the poster, “How Big is Africa?”.

## Preview Lesson

### LESSON ONE: PERCEPTIONS AND PROJECTIONS

Objective: For students to compare Africa to other continents in the world while assessing how the projection used influences our perceptions.

Grade level: Grades 4-8 (Part A) and Grades 9-12 (Part B)

#### Part A

In small groups, or as a class, have students consider the following questions.

1. Look carefully at each of the projections of the world in Appendix A.
2. Write a brief statement which compares Africa to each of the other continents. For ex. “Africa is larger than Australia but smaller than Asia.”
3. Does your perception of the size of each of the continents differ according to which projection you are looking at?
4. What is the most accurate way of seeing the relative size of the continents? [globe] Why?

#### Part B

Read the following paragraph on the Peters Map controversy and discuss whether or not you think this projection should be used more often.

Arno Peters, German map maker, historian and journalist, developed an equal area map projection in the early 1970's in order to counter the commonly used “Eurocentric” Mercator map projection. He stated, “In our epoch, relatively young nations of the world have cast off the colonial dependencies and now fight for equal rights. It seems important to me that developed nations are no longer at the center of the world, but are plotted according to their true size.” He points out that on the Mercator map Europe's 3.8 million square miles are made to appear larger than South America's 6.9 million square miles. Peters initially wrote a controversial world history text and found that “the quest for the causes of arrogance and xenophobia has led me repeatedly back to the global map as being primarily responsible for forming people's impression of the world.” It is important to note that the Mercator projection is rarely used today except for the purpose it was originally designed for - navigation. Of course, many Mercator maps can still be found in use by graphic designers, in older classroom materials and as inexpensive wall maps.

Cartographers have criticized the Peters map in part due to its distortion of the shapes of continents- one cartographer went so far as to describe the effect as being, “the resulting land masses are somewhat reminiscent of wet, ragged, long winter underwear hung out to dry on the Arctic Circle.” While each continent is reflected accurately in terms of area proportion, the overall effect of the maps is not a realistic portrayal of the earth. Cartographers argue that numerous projections developed since the Mercator projection (such as the Robinson and the Goode) succeed in achieving a more realistic image

without a Europe centered focus. In fact, equal area projection projections had existed since 1772 but the press, the United Nations, the World Council of Churches and the National Council of Churches heralded the Peters map as a way for the third world to break away from colonial constructs.

Thus, timing was everything; many nations of the world had just achieved independence from colonial powers within the previous decade. Peters as an accomplished journalist, knew the art of generating publicity. There ensued an on-going debate over the use of this map between cartographers on the one hand and people who believed the map would change people's perceptions about the Third World on the other.

## Using the Poster \*

### LESSON TWO: HOW BIG IS AFRICA?

Objective: For students to examine closely the map/poster provided.

For elementary students in particular to explore the differences between continents, countries, and states and to teach that size is not a key determinant of whether a place is a state, country or continent.

Grade Level: Grades 1-12

Depending upon the age level of students, display the poster and pass out the maps (Appendix B) and explore the following ideas. (Before looking at the map, you may want to have students speculate about the relative size of Africa, China, Europe and the US. )

For early elementary students:

The places pictured inside the map of Africa include a continent, two countries and two states. Which are which?

Discuss and look at the maps to evaluate whether or not size affects whether places are continents, countries, or states. Are the continents all the same size? Can countries be larger than continents?

Which two areas are closest in size? [ China and the United States]

Find out the size of Alaska and compare that with the size of small countries in the world.

Compare the number of countries in Europe with the number of countries in Africa.

For upper elementary/ middle grade students:

How big is 11,608,000 square miles? (what are other ways you could describe this size. (For example, Africa is 6,767,798,095 (that's almost 7 billion!!!) football fields. If you were to give each person on earth, almost 6 billion, land in Africa, you could give everyone their own football field! ) With what sizes are you familiar so that you can compare easily in your mind how big this is? (for ex. if you are living in California, how many California's fit into Africa?)

How many times would the United States (or China, or Europe) alone fit inside Africa?

Find out the square mileage for your home state. How many times would it fit inside Africa?

For high school and middle school:

Why does it matter that we know how big Africa is?

Follow-up:

Calculate the relative size of various empires at similar times. For example, the Mali empire in the 1300's was the size of western Europe alone. It went from the Atlantic coast to the Niger river and then included many of the trade towns of the western Sahara desert. Compare this to the Carolingian empire in Europe, the Inca empire, or the Mongol empire around the same time.

### LESSON THREE: HOW LONG WOULD IT TAKE?

Objective: For students to get a sense of relative distances in Africa compared to other continents.

Grade Level: Grades 4-9

1. Complete the following measurements using a globe or atlas using the appropriate scale and either string (in the case of the globe) or rulers (in the case of the atlases.) The places chosen are the distant points on a north / south or a east / west axis within each continent. They are not necessarily the farthest points but do give a sense of the distances involved.

Continent Name	% of Earth's land	Point to Point	Est. Mileage (or km)
Africa	20.6%	Cairo to Capetown	[Approx. 4800 (7730)]
Asia	29.5%	Jerusalem to Tokyo	
Oceania	5.2%	Darwin to Melbourne	
Europe	6.5%	Lisbon to Uralsk	
North America	16.3%	Churchill to Veracruz	
South America	11.8%	Caracas to Puerto Williams	
Antarctica	10.1%	(no permanent cities)	

2. Choose one other set of points in Africa and one other continent to compare.

3. What do these measurements say about the size of Africa relative to other places?

Possible Follow-up Activities for history classes:

\* Investigate early exploration of Africa. What did Arab (e.g. Ibn Battuta), Asian (e.g. Zheng He), and European (e.g. Vasco de Gama) travelers believe about the size of the continent and how did this shape their perceptions of the peoples and regions of Africa?

\* Cecil Rhodes was a British explorer and businessman in the 19th century. His greatest dream was to build a telegraph line and railroad from the Cape of Good Hope, in southern Africa, to Cairo Egypt. Explore the reasons why such a transcontinental railroad has never been completed in Africa.

## LESSON FOUR: WHY DOES SIZE MATTER?

Objective: For students to recognize the diversity of Africa and see why understanding the size of Africa matters in avoiding making generalizations about "Africa" as a whole.

Grade level: Grades 4-8

### THE FACTS:

#### SIZE AND CLIMATE:

Africa is the second largest continent in the world

15% of it is considered desert (hot with little rain)

10 % of it is considered tropical rainforest (tropical wet)

35% of it is considered savanna/ grasslands (steppe)

The rest of Africa includes Mediterranean climate, mountain climate, tropical wet and dry, rainy and mild and wet and mild.

#### POPULATION DIVERSITY

There are over: 800 **ethnic groups** in Africa This includes Asians, Europeans and Arabs, who have permanently settled there, in some cases, for centuries.

1000 **languages** are spoken in Africa (40 of which have more than one million speakers)

Over 40% of Africans practice a wide variety of traditional **religions**. There are also many forms of Christianity and Islam, as well as some Hinduism, practiced in Africa.

### **AGRICULTURAL DIVERSITY**

The following crops are only the main ones grown in different regions of Africa. There are many more not listed here. Note the different climate needs for each.

**RICE**- Grown in sub-tropical climate areas, paddy rice is found in the Nile river delta lands of Egypt, in Madagascar, and in West Africa in coastal mangrove swamps.

**WHEAT**- As a traditional crop in North Africa and Ethiopia, these were the main sources of wheat consumed during the Roman Imperial times. Northern Africa was then the “bread market” of the world. Wheat is now also grown in South Africa, Zimbabwe, and Kenya as well as in some irrigated areas of Nigeria.

**MAIZE (CORN)** - Corn is a widespread crop in Africa grown in tropical, sub-tropical and temperate latitudes. It is found throughout Eastern and Western Africa as a local crop and is exported from Zimbabwe and South Africa .

**SORGHUM AND MILLET**- Grown in dry savanna lands, these grains are often the main staple crop.

**ROOT CROPS**- These are widespread throughout the tropics including the savanna and equatorial lands and include yams, sweet potatoes, and cassava.

**OIL PALM**- A local staple in West Africa which requires hot humid conditions with constant temperatures and heavy rainfall year round.

**TEA**- Tea also requires uniform temperatures year round though lower than palms and not as wet, often in highland areas. Introduced as cash crops in East Africa, especially Kenya, tea is now also grown in some parts of West Africa.

**COCOA**- Requiring tropical climates, cocoa is a major crop in Ghana, Ivory Coast, Togo, Benin, Cameroon and Nigeria.

**COFFEE**- Thought to have originated in Ethiopia, coffee thrives in tropical (often highland) climates (20 degrees N and S of the equator) including Ivory Coast, Ethiopia, and Uganda.

**WINE**- Grape vines are characteristic of Mediterranean climates including portions of the South African coast, as well as Algeria, Tunisia and Morocco.

**SUGAR**- Sugarcane is produced in tropical climates. In addition, it is exported from South Africa, Swaziland, Zimbabwe and Malawi.

**TOBACCO**- Grown throughout temperate and tropical areas, this product originated in North America but is produced for export in Zimbabwe, Malawi, Nigeria and Tanzania.

**COTTON**-Cotton is widely grown in tropical and sub-tropical regions in areas that are rain fed and under irrigation. Egypt and Sudan are the main producers in Africa.

**SISAL**- These trees produce a coarse fiber for making rope or twine. As a drought resistant plant, it can survive without large amounts of water. Tanzania, Kenya, Angola, Madagascar and Mozambique produce 40% of the world’s supply.

1. Write a short essay on how these statistics help to show the diversity of Africa. Since Africa is so large, covering many climate zones and encompassing over 800 million people, this diversity is to be expected
2. Using the information here, as well as additional research if needed, develop a paper scavenger hunt where classmates would have to discover where certain items are grown or found in Africa using climate, political and vegetation maps of Africa.
3. Teachers may wish to combine a study of climographs with this activity.

### **LESSON FIVE: AFRICA’S NOT A COUNTRY**

Objective: For students to recognize that it is hard to generalize about Africa, because its diversity is great and each of its 53 countries is unique.

Grade level: Grades 4-9

In many places in west Africa, traditional storytelling is done by a griot- a professional oral historian who has learnt the histories and stories of his/her family of past centuries to recent times from ancestors. Often in the course of telling the story, the audience is encouraged to interject which assures the teller that all are still awake. The following fictitious story was written to illustrate the misuse of the term “Africa” in the course of our daily lives. As the teacher reads the story aloud, students should interject with the word WHERE? whenever they believe the term is used to represent more of Africa than is intended. For the benefit of the teacher, the more precise areas are listed in parentheses where possible.

NOTE TO TEACHER: Teachers may wish to remove the hints from the paragraph and provide each student with a copy of the paragraph that they can read individually first and then along with the teacher after. You may wish to give them a sense of how many mistakes there are to find. The important thing for students to realize that these generalizations may indeed be true of a few places in Africa but they do not represent the whole continent.

As I sat down at breakfast this morning, I poured myself a bowl of cocoa puffs and thought of what my geography teacher had talked about in class yesterday. Much of the chocolate we eat is from Africa. [ Ghana and Nigeria] While eating, I picked up the newspaper and discovered that the President will be traveling to France, China and Africa [where?] in upcoming months. My father drove me to school and he, as always, listened to the news on the radio. I heard that in the country of Africa [where?] famine and ethnic conflict continue to be a major concern. In geography class today we had an African guest speaker. I asked him why it was always so hot in Africa [ where? - Remember this may be true of some locales at some times of the year but there is also much cold weather in highland areas (snow on Mt. Kilimanjaro as well as ice in winter months on the high plateaus of Southern Africa.)]. One of my friends said that when her family traveled to Africa [where?] that her mother had worried about tropical diseases in Africa [ where? perhaps some equatorial areas but not everywhere]. Later that day, in science class we talked about nuclear energy and learned that Africa [ Madagascar, South Africa, Zaire] has large deposits of uranium used in creating energy. After school, I relaxed in front of the television watching old movies on Nickelodeon and drinking a Coke. I remembered my geography teacher having said that the cola flavor comes from kola nut trees grown in Africa [ numerous west African countries]. I watched an old Tarzan movie and wondered about the African [ where?] jungle [the term “rainforest” is more accurate and is only found along the coast and inland along the Zaire river basin]. I also thought about what our guest speaker had said today, “Africa is so diverse that it is hard to make generalizations about this continent.”

Possible Follow-up:

Teachers may want to provide extra credit for students who bring in further examples of such references they hear on the news, in commercials or in conversations. The more they are encouraged to recognize the problem, the more attuned they will be to avoiding generalizations about the continent of Africa.

## LESSON SIX: COUNTRY CUTOUPS

Objective: For students to create their own “How Big is Africa” map emphasizing relative size of countries compared to the size of Africa.

Grade level: Grades 3-7

Note to teachers:

You may wish to enlarge the cut-outs to facilitate younger hands cutting out the shapes. Don't worry too much about perfection in cutting however. In fitting Russia onto the continent, there is a natural break at the Urals where students can cut Russia in two parts, dividing European Russia from Asian Russia.

Using Appendix C and the following information, students can make their own "How Big is Africa."

For ease of calculation, all numbers have been rounded off to the nearest thousand.

Total area of Africa = 11,608,000 square miles

Saudi Arabia	831,000 sq. miles	1.
India	1,269,000 sq. miles	2.
Brazil	3,286,000 sq. miles	3.
Argentina	1,073,000 sq. miles	4.
Canada	3,848,000 sq. miles	5.
France	210,000 sq. miles	6.
Mexico	756,000 sq. miles	7.
Australia	2,965,000 sq. miles	8.
Russia	6,591,000 sq. miles	9.
USA	3,718,000 sq. miles	10.

1. Select from the cutouts to fill the continent. Note that different combinations can be used to fill Africa.
2. For a special math effort, figure out which countries to use to come closest to the total square miles in Africa- 11,608,000.
3. How many times can you fit India inside of Africa? How many times can you fit France inside of Africa?

Possible Follow-up:

Have students color in the cut-outs or research climate, resources, religions, and languages which could then be put onto the maps using symbols. They could then compare these characteristics to specific places in Africa.

### **ADDITIONAL RECOMMENDED RESOURCES**

Many of these materials, in addition to many more, are available at the African Studies Center at Boston University:

**Outreach Program, African Studies  
270 Bay State Road, Boston, MA 02215**

**[www.bu.edu/africa/outreach](http://www.bu.edu/africa/outreach) Email: [africa@bu.edu](mailto:africa@bu.edu) Phone: 617 353-7303**

#### **Print Resources & Teaching Guides:**

Africa Project Mapping Africa SPICE (Stanford Program on International and Cross-Cultural Education) 1994. (Grades 4-10)  
Map Skills: Africa Milliken 1992-94. Available through Social Studies School Services. (A great collection of several color overheads) (Grades 5-9)

Wayne Edge. Global Studies Africa (a biannual publication with three pages on each country plus fifty pages of useful articles).

Monmonier, Mark Drawing the Line Tales of Maps and Cartocontroversy New York: Henry Holt and Co. 1995. (Good information and bibliography on the Peters Map Controversy) (High School/ Adult)

Fatoye-Matory, Bunmi "I Am Not Just An African Women". A one page article published in the *Christian Science Monitor* (July 1996), in which Fatoye-Matory explores with feeling and humor what it is like to come to the US and to lose her identity as a Nigerian. A link to the article is available on our website.

#### **Websites:**

www.bu.edu/africa/outreach  
www-sul.stanford.edu/depts/ssrg/africa/guide3

**Videos:**

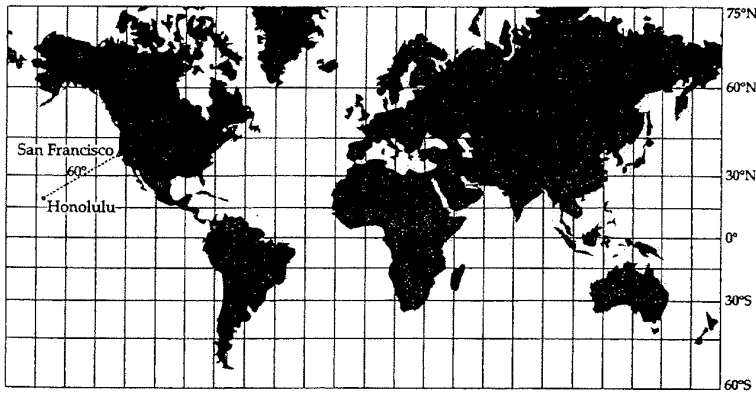
*What Do We Know about Africa?* video and teaching guide. Boston University, 1996. Grades 6-12.  
*Understanding Each Other* Altschul Group/United Learning, 15 minutes; superb for grades 5-10.

\* The How Big is Africa Map itself was developed by the African Studies Center at Boston University, with help from Tina Chimombo and with the assistance of the Cartography Program at Clark University.

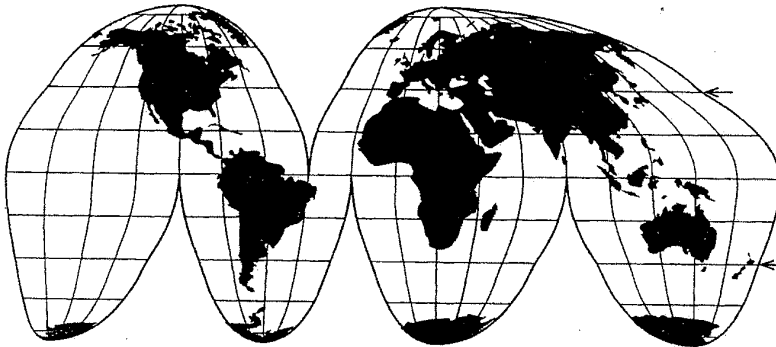
## APPENDICES

### APPENDIX A PROJECTIONS

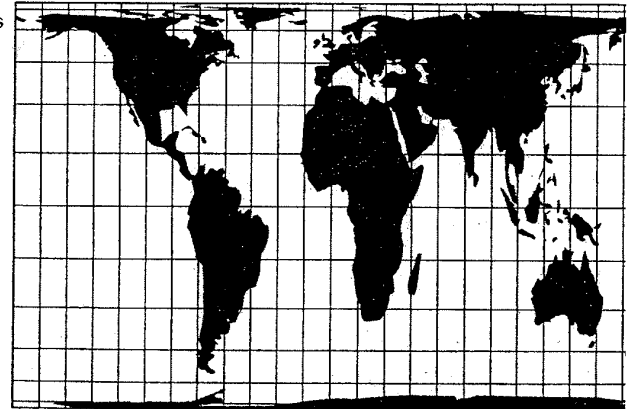
#### MERCATOR



#### GOODE



#### PETER





# How Big is Africa?

Approximate Area in Square Miles

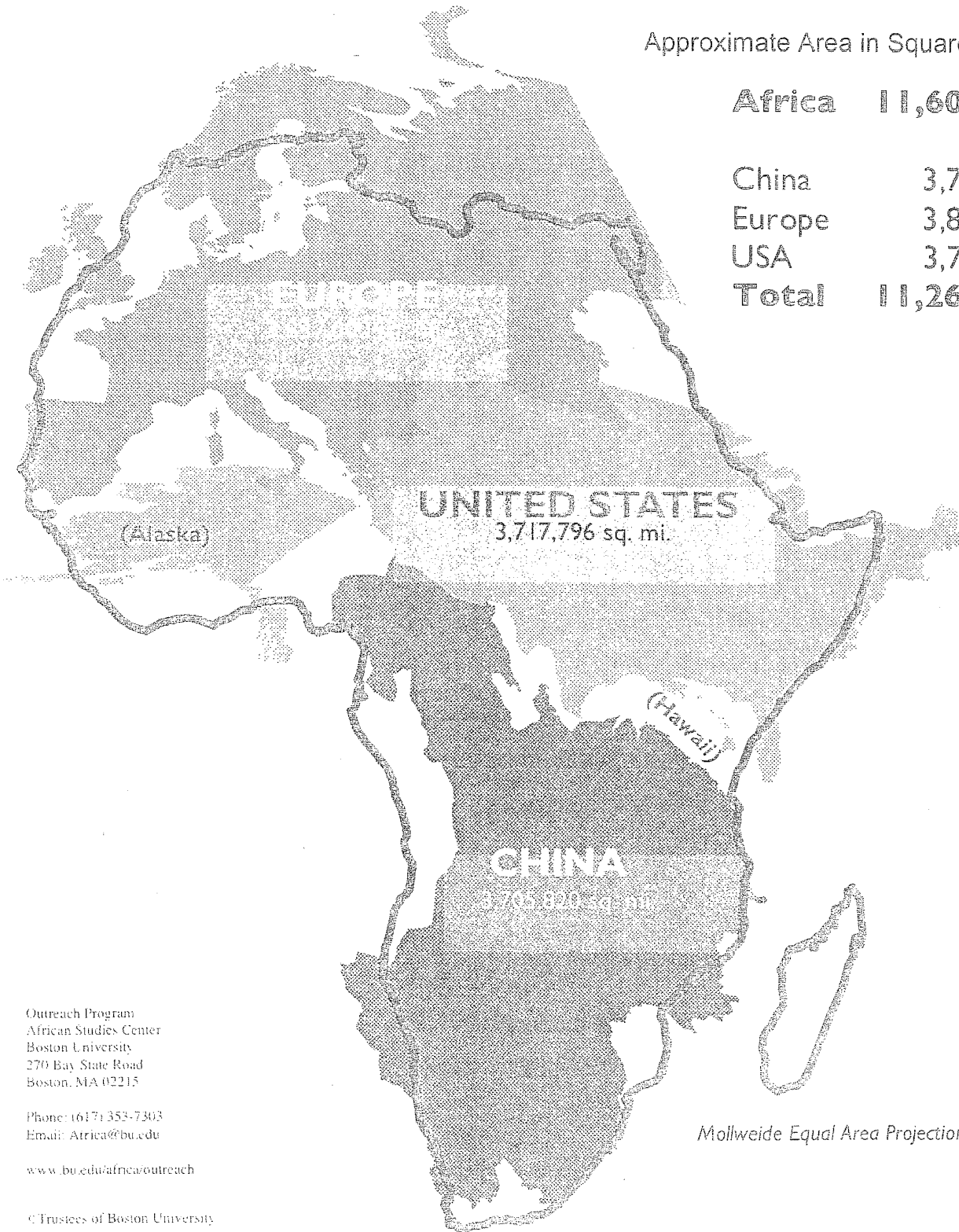
**Africa 11,608,000**

China 3,705,820

Europe 3,837,000

USA 3,717,796

**Total 11,260,616**



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*Mollweide Equal Area Projection*



