

# Missouri - A Sense of Place

**Ways to use the Missouri Resource Assessment Partnership 1998 Spectral Diversity Map of Missouri prepared by the Missouri Environmental Education Association (MEEA) [www.meea.org](http://www.meea.org) for additional maps or information on MEEA, contact Jan Weaver at [weaverjc@missouri.edu](mailto:weaverjc@missouri.edu)**

**Missouri Facts from US Census Bureau** - [http://quickfacts.census.gov/qfd/maps/missouri\\_map.html](http://quickfacts.census.gov/qfd/maps/missouri_map.html)  
relate census bureau statistics on Missouri Counties to their location in the state relative to ecological and geological features shown by the map

**Mo Rap - Missouri Resource Assessment Partnership** - <http://www.cerc.usgs.gov/morap/>  
use a diverse range of MORAP maps available on line to connect the spectral diversity to land use, settlement and environmental questions

**Missouri Grade Level Expectations for Science and Social Studies**  
check the GLE concept by grade for a way to use the map to teach the concept

Area	Strand	Concept	Grade	Topic/Strategy	Link to MO Map
Science	Ecology	Interdependence	4	diversity is affected by changes in environment caused by other organisms or outside processes	use map to show where humans are more or less influential (colors and grids of human habitation, roads)
			6	identify biotic and abiotic factors that make up an ecosystem	use map with information on rainfall and temperature to show how communities change across the state - east to west, south to north
			6	describe beneficial and harmful activities of agents of change (natural and human)	use map to show where humans are more or less influential (colors and grids of human habitation, roads), show where fire is important
			6, 9 - 11	finite resources	relate distribution of plant communities to rainfall and temperature, (9 - predict how communities might shift with global warming)
			9 - 11	predict/explain impacts of human action	from news sources identify cases of development or agricultural management, locate them on map, predict what impact will be on surrounding landscape
		Matter and Energy	3	classify populations as producers or consumers	use map to show where there are different kinds of producer communities - grassland, forest, crops
	Earth Systems	Components	2	observe and describe physical properties of different soils	use soils from different parts of state and relate soil type to region
			4	compare physical properties of rocks	use rocks from different parts of state and relate rock type to region
			5	major bodies of surface waters and how they	find major lakes, rivers and streams on map and

				were formed	show how their structure says something about their formation (dam or natural), meanders, watersheds, floodplains
			6	sedimentary and erosional processes	which parts of state are they currently occurring in based on map features
			8	classify rocks as sedimentary, igneous or metamorphic	relate regions of state to sedimentary, igneous or metamorphic rock
			9-11	karst topography	relate regions to karst topography
		Changes in Earth's Surface	4	major landforms, weathering, erosion	major landforms in state (regions) and influences of weathering, erosion, sedimentation
			5		
			7	paths of water	distinguish regions of state dependent on surface and dependent on ground water flow
			8	age, history and environment of earth	connect ages of surface bedrock in state to regions
			9	explain external processes and factors that affect weathering, etc.	relate to topography as shown by map
		Humans and Earth's Resources	4	ways humans affect erosion and deposition	patterns of paving
			5	water for recreation, irrigation, transportation	how these water uses look like from above
			6	impacts of human uses - fertilizers, etc. on fresh water	which regions would be affected by different human activities
			9-11	identify human activities that affect earth	patterns of landscape use by region
			9-11	recognize how geomorphology affects development	ditto
	Inquiry	Skills & Reasoning	k-11	pose questions that can be answered qualitatively or quantitatively	use map colors, areas, roughness, relative location, ecosystem types, reflectance
			k-11	compare with what is already known	compare this map to other maps of Missouri - hiway, geologic, climatic, etc.
			k-11	communicate	draw new maps using this map as the basis
	Impact of Science, Technology & Human Activity		k-11	designed vs natural objects	how can you tell on the map
			3-11	improvements in technology and data collection	what kind of questions can this map answer that other maps could not
			6-11	how tools work	investigate the methods used to make this map
			9-11	role of different groups	who participated in making this map and why
			9 - 11	what are the ramifications of this information	what might people, society or government do differently based on the information in this map

Area	Content	Concept	Grade	Topic/Strategy	Link to MO Map	
Social Science	History	Ways Missourians have interacted	4	find where different groups settled on a map	what landform features would affect settlement	
			4	slavery	what part of state was slave, what free, related to land forms	
		Contributions of non-Missourians	2	habits, resources, art and daily lives of Woodland & Plains Indians	what part of state is wooded, what part plains	
			4	Lewis and Clark	trace the expedition's journey on the Missouri	
		Native American Cultures	5, 8	viability and diversity of Native American cultures before (5) and after (8) Europeans	relate topographic features to different cultures of Native Americans, different groups of European settlers, competition for resources?	
		Settlement History	5	construct map showing where people settled	use map to explain how topography, ecology would affect settlement	
		Westward Expansion	8	Lewis and Clark	use Missouri entries of their journal and relate to places on river and its topography	
		Causes and Consequences of Civil War	5, 8	identify political, economic and social causes and consequences of Civil War and Reconstruction	how do topography, ecology, land use and pro and anti slavery areas line up	
		United States History	9-12	Analyze Mo history as it relates to major US developments	use map to explore settlement patterns, migratory routes, land use, slavery, civil war, urbanization in context of physical landscape	
		Economics	Economic Decision Making	4	interpret past, explain present and predict future consequences of economic decisions	impacts on watersheds, rivers of building, logging or farming in an area - downstream impacts, ground water contamination
			Economic Concepts	6	specialization and sources of wealth	use the map to identify sources of natural wealth, soil for crops, forests, rivers for transportation
				8	business cycle, trade-offs	compare incomes from different areas based on how they use the land, see if trade off and business cycles are related to time it takes for land to recover
				5-8	Interpret the past, explain the present and predict future consequences of economic decisions	use state and federal actions proposed for Mo land to see what consequences might be for surrounding areas, i.e. logging on tourism and watershed protection, ethanol subsidies on cropping
			9-12	factors of productions	physical landscape, ecological communities, networks of exchanges	
	Geography	Location	1	locate a place on a map and describe its relative location	find where they live and see where it is in relation to major rivers, ecological communities	
			3	identify and locate major rivers	identify and locate major rivers and flood plain features	
			4	locate KC, Springfield, St. Louis, Jeff C., Columbia and St. Joe	locate these cities by the difference in reflectance	
			9-12	apply knowledge of Missouri's geography	use map to identify economic activities that connect us to the rest of the world, locate major cities relative to each other and physical features	

		Place	2	identify and describe physical characteristics	waterbodies, flood plains, plant communities, drainages, hilly areas
			4	identify and describe human characteristics	what human characteristics look like from space, grids, road networks - distinguish from natural features
			5-8	describe physical characteristics	make explicit connections between map's physical features and ecological and human systems
			9-12	describe physical characteristics that make a place unique	what physical features make each Missouri region unique, how do you translate the satellite image into features on the ground
			9-12	how do physical processes shape surface	erosion features - flood plains, down cutting, entrenched meanders - connect precip to soil and bedrock information to make topography
		Human-Environment Interactions	2	why people settle more in one place than another, transportation and communication systems	settlements near rivers, in flatter, grassier places, less in hilly, isolated parts of state
			3	Mo Ecosystems and the physical factors that cause them to be where they are	topography, water, and se to nw changes in precip and temp shape plant communities
			4	how people depend on different environments	how do people in bootheel make a living compared to people in Ozarks, Osage plains or along rivers
			6-7	resource distribution	relate physical features of map to distribution of natural resouces in state
			9-12	factors that account for trade and migration	courses of rivers and roads and their effects on settlement
		Regions	2	define regions	use map colors to decide what are the regions of Mo - how are they related to plants & topography
			3	examples of regions	find examples of urban, rural, other
		Use geography to interpret, explain & predict	3	explain present	where do different kinds of food come from and why, wood for houses, water for drinking
			4	interpret past and predict future	how would map look different if we took picture in 1800's, how will it look different in the future?
		Geographic Resources, Problem Solving	5 - 8	information to solve problems	use map to relate topographic, ecological, settlement and land use features to different kinds of problems, create new maps that incorporate this information
	Tools of Social Science Inq.	Identify, select, use and create appropriate resources for SSI	2-4, 9-12	identify, select and use primary and secondary sources	determine if map is primary or secondary, use map to construct secondary sources - compare process of making maps from satellite images to process used in earlier times
		Use and create Maps	5-8, 9-12	use and create maps	use the map to investigate issues and to create multi-layered maps