NO PREP

Urban Models & Land Use

How Cities Are Organized

Includes: Student reading, case study, differentiated questions, teacher key

Name: Period: Date:

Urban Models & Land Use: How Cities Are Organized

Classic Urban Models — Simple Explanations

Urban models are simplified frameworks that help students see recurring spatial patterns and the forces that shape cities. They are not literal maps but tools for reasoning about how transport, land values, history, and economic function arrange urban space. The Concentric Zone model imagines the city as a set of rings around a central business district (the CBD). In this view, activities that benefit from proximity to the center — commerce, finance, and dense retail — occupy the inner ring; transitional zones with mixed uses and older housing appear next; then working-class residential rings; then middle-class suburbs; and finally

Name: **Period:** **Date:**

Urban Models & Land Use: How Cities Are Organized

Classic Urban Models: Simple Explanations

Urban models are simplified frameworks that help students see recurring spatial patterns and the forces that shape cities. They are not literal maps but tools for reasoning about how transport, land values, history, and economic function arrange urban space. The Concentric Zone model imagines the city as a set of rings around a central business district (the CBD). In this view, activities that benefit from proximity to the center occupy the inner ring: commerce, finance, and dense retail. Transitional zones with mixed uses and older housing appear next; then working-class residential rings; then middle-class suburbs; and finally commuter or rural zones. The model emphasizes distance and accessibility as primary organizing principles. The Sector (Hoyt) model retells spatial organization through the lens of transport corridors. Instead of rings, it shows wedge-shaped sectors radiating from the center along major roads, rail lines, or rivers. For example, an industrial sector might run along a rail corridor or river to simplify freight movement, while upscale residential sectors can extend outward along scenic routes or early transit lines. The sector model highlights how directional growth, channeled by infrastructure, can cluster certain land uses along linear axes rather than equally in all directions. The Multiple Nuclei model takes a different stance: rather than one dominant center, modern cities often develop several centers or nuclei. These nuclei specialize: a port attracts logistics and light industry; a university generates research parks, student housing, and cafes; an airport business park draws hotels and corporate offices. In this view, the urban landscape is polycentric, with interdependent centers connected by transport networks. Each model emphasizes different drivers (distance, corridors, specialization) and provides vocabulary for describing urban form. Used together, they let students compare observed city patterns against theoretical expectations and reason about why particular land uses are where they are.

How Land Use Arranges Spatially in Each Model

Each model suggests distinct spatial logics for common land uses (residential, industrial, and commercial) but real cities often display mixtures of these logics. In the Concentric perspective, heavy industry and lower-income housing are often located relatively close to the CBD because land is cheaper or because proximity reduces transport costs for goods and workers. Higher-income households tend to locate further out in suburbs where land is larger, air quality is generally better, and commuting (in earlier eras) was feasible for wealthier households. In the Sector model, transport infrastructure creates directional patterns. Industry follows rails or highways; retail corridors may develop along major arterials; and high-income residential sectors often locate along preferred corridors that provide both access to the CBD and desirable environmental qualities (e.g., hills, waterfront). As a result, a single city can have industrial wedges on one side, affluent wedges on another, and mixed-use wedges elsewhere, rather than neat concentric rings. The Multiple Nuclei model shows how specialization produces clusters: a port nucleus concentrates warehousing and freight services; a university nucleus concentrates student housing, startups, and cultural venues; an airport nucleus attracts hotels and corporate services. These nuclei can reduce the need for everyone to commute to a single CBD, generating shorter commutes for some but also new trip patterns between nuclei. Modern metropolitan regions often show overlays: inner-city rings persist in older cores, sectoral wedges follow older transport routes, and new nuclei emerge at suburban interchanges or around greenfield employment parks. Land use therefore emerges from the interaction of accessibility, land cost, historical development paths, and policy (zoning, infrastructure investments).

Strengths and Limits of Models for Modern Cities

The three models are powerful pedagogical tools. Their strength lies in clarifying how accessibility, transport, and function shape spatial arrangements and in giving students a structured way to interpret maps and urban patterns. For example, spotting a wedge of expensive housing along a transit line invites students to link land value with accessibility: a sectoral logic. Noting multiple employment centers suggests a nuclei explanation. But these models simplify. Modern urban realities include polycentric metropolitan regions, sprawling suburbs, gated communities, informal settlements, and megaregions. These patterns blend, distort, or bypass the

tidy geometries of rings and wedges. Globalization and digital networks change where high-value activities cluster; remote work and edge-city employment centers alter commuting patterns; informal housing and incremental development can create patchy land-use mosaics not predicted by early models. Planners still use the models because they teach spatial thinking and help craft zoning and transport strategy, but effective analysis recognizes model limits and complements them with data on travel flows, land markets, and socio-economic dynamics.

Short Case Scenario (applied identification)

City Z began as a port town with dense CBD warehouses and adjacent worker housing — a classic inner ring. When a commuter rail arrived, an elongated corridor of affluent housing developed along the rail to nearby hills — a sector. Later, a university and an airport business park were established on the periphery; retail nodes, research incubators, and residential enclaves grew around these centers — distinct nuclei. City Z therefore displays features of all three models, demonstrating that multiple frameworks are often needed to describe modern urban form.

Key Information: Table: Urban Models — Key Ideas

Model	Shape	Typical Spatial Logic
Concentric Zone	Rings	Central business core → transitional → residential rings
Sector (Hoyt)	Wedges / sectors	Land uses extend along transport corridors
Multiple Nuclei	Multiple centers	Specialized centers (port, university, airport park)

Case Study Excerpt (hypothetical / representative)

Long before the suburban boom, Harborview grew up around a natural deep-water port that anchored the town's economy. The downtown port area concentrated warehouses, ship chandleries, and wholesale markets; nearby streets housed sailors, dockworkers, and small manufacturers in dense rows of worker housing. In the mid-twentieth century a commuter rail line connected the port district to a highland plateau; the rail not only shortened commute times but also made the plateau an attractive residential setting. Developers and wealthier households built large homes along the rail corridor to access downtown employment more easily, producing an elongated strip of higher-income housing — a clear sector running from the CBD to the hills. In the later part of the twentieth century, regional planners located a new university campus at the plateau's edge and expanded the airport with an adjacent business park. Around these peripheral investments, retail centers, research incubators, and residential enclaves sprung up, forming distinct nuclei that each attracted compatible activities: the university drew student housing, cafés, and small tech startups; the airport park attracted logistics, hotels, and corporate offices. Over decades the city's map read as an overlay: dense inner-city activity near the port (concentric core), a transportation-linked wedge of affluent housing (sector), and multiple edge centers (nuclei). Municipal policymakers then faced practical coordination challenges: how to align zoning, transport investments, and housing supply across these interacting patterns. Their planning responses included mixed-use zoning near transit stations, protection of green corridors on the plateau to maintain amenity values, and incentives for denser housing in walkable nodes to reduce commute pressures. Harborview's layered development underscores that real cities often combine concentric tendencies, sectoral directionality, and polycentric growth; analyzing which model features dominate in a given neighborhood helps planners tailor interventions to local conditions.

1. Identify two features in the excerpt that reflect the Sector model.

_____

_____

2. Explain how the university functions as a nucleus in the city.

_____

_____

Multiple Choice

1. The Concentric Zone model most directly highlights:
    a) Multiple business districts developing independently
    b) Linear development along coastlines
    c) Wedge-shaped sectors along transport lines
    d) Rings of land use radiating from a central point

2. The Multiple Nuclei model suggests that:
    a) All industry is in one central district
    b) Wealth is uniformly distributed around a city
    c) Suburbs never have employment centers
    d) Cities can have several specialized centers

3. A sector of high-income housing that follows a rail line is best explained by:
    a) Sector (Hoyt) model
    b) Random distribution
    c) Multiple nuclei model
    d) Concentric zone model

Matching

Write the letter of the correct definition on the line next to each term.

Term	Definition
1. ___ CBD	A) Outlying residential area linked by commuting
2. ___ Zone	B) Wedge-shaped area along transport route
3. ___ Sector	C) Independent center like an airport park
4. ___ Nucleus	D) Residential or functional area in a model
5. ___ Suburb	E) Central business district (downtown core)

Fill-in-the-Blank

1. The _____ model imagines the city as a set of rings around a central business district.

2. A _____ is a specialized center that attracts certain activities.

3. The _____ model emphasizes wedge-shaped land-use patterns.

Short Answer

Answer each question in 2-4 complete sentences.

1. Give one reason the concentric model may not fit modern cities.

_____

_____

_____

2. How does transport shape land use in the Sector model?

_____

_____

_____

3. Why do planners still teach these models?