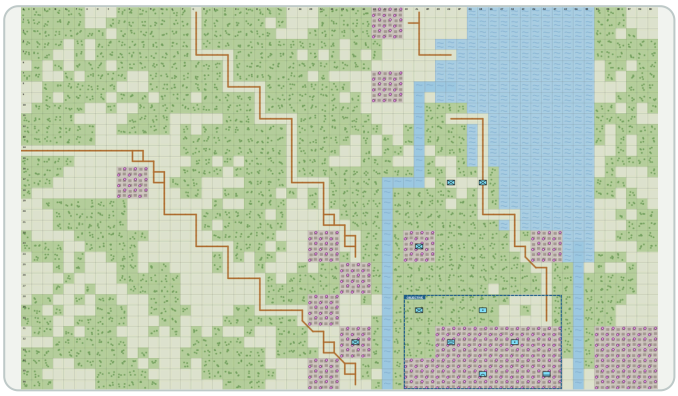
STUDENT HANDOUT

The Road to Kyiv

Hostomel, Bucha, Irpin and Moshchun, north west of Kyiv, Ukraine · March 2022



Scenario illustration · AI generated



Student map · own side only · Simulation situation map · reconstructed terrain and estimated deployments; not verified historical positions.

Learning objectives

- Compare how modeled drone observation reveals supply units and how loss of supply changes vehicle movement, artillery replenishment and drone turnaround in the simulation.
- Assess how the model's rain, terrain and river crossings affect movement and drone flight time; keep this comparison separate from claims about every historical engagement.
- Evaluate the trade off between strict and standard rules of engagement when an enemy column approaches a city where civilians still live.

Run time and a good result

Default run clock: 2 minutes 30 seconds at 1×, excluding pauses, briefing and discussion. Time controls change elapsed play time.

Objective: Keep Russian forces out of Kyiv’s north western districts, east of the Irpin river, until time runs out.

The Road to Kyiv: Keep Russian forces out of Kyiv’s north western districts, east of the Irpin river, until time runs out. Prevent an unopposed enemy occupation of the marked zone lasting 8 continuous simulation seconds; retain a fighting force until the episode ends. The authored limit is 150 simulation seconds across 1 stage. Compare objective progress, time, losses, drone expenditure and recorded civilian harm with a second run. A strong classroom result also explains the source evidence and reconstruction estimates; it does not verify a historical casualty count.

Atrocity notice

The UN Commission found war crimes by Russian authorities, including killings, torture and sexual violence, and a small number of violations by Ukrainian forces. Its March 2023 findings are context, including for later scenarios.

These reports describe the wider conflict. They do not establish that every crime occurred in this modeled battle.

Studying or commanding a side does not endorse its conduct. Drone Front never lets players target civilians, hospitals, schools or places of worship. Civilian harm from simulated strikes is counted and shown in the debrief, including nonzero harm. Civilian massacres are never playable operations. Designated terrorist forces and Wagner remain computer controlled; Gaza war events remain excluded from play.

▼ Dated reports and findings

- 2023-03-16 · UN Commission of Inquiry: war crimes in Ukraine

Learn more: the laws of war

- ICRC: Geneva Conventions and commentaries
- ICRC: Customary IHL database
- UN: Genocide Convention (9 December 1948)
- UN: Rome Statute (17 July 1998), articles 6–8

Historical source notes

Borger reports commanders' convoy-disruption claims while noting incomplete verification; this exercise cannot isolate drones' contribution to the northern offensive's failure.

Watling, Danylyuk and Reynolds's 2024 RUSI study links Russia's withdrawal from Kyiv, Chernihiv and Sumy to insufficient forces. The study draws on Ukrainian interviews and released General Staff data; this is attributed analysis, not proof of a single drone unit causing the withdrawal.

Evidence for learning objectives

Reuters reported Maxar imagery of a convoy about 64 km long north of Kyiv. The lesson compares this dated observation with the simulation’s simplified dependence on supply.

RUSI describes raised water on the Irpin obstructing the Russian advance. Damaged crossings and rain are also constraints represented by this model.

RUSI describes reconnaissance and supporting artillery in the defence of Kyiv. Aerorozvidka’s convoy account remains attributed to the unit.

Timings

For 60 minutes, brief for 10, run it once with the three pauses for 25 and review for 25; for 90 minutes, add a run without drones and compare how far the column got; for 180 minutes, add a night run, when only the R18 bombers and the TB2 carry heat sensing cameras, and a run under strict rules of engagement, then compare time held and civilian harm across the class.

Session	Plan
45 minutes	Brief: 10 min; Run: 15 min; Collect: 5 min; Review: 15 min
60 minutes	Before questions: 5 min; Brief: 10 min; Run: 20 min; Collect: 5 min; Debrief and after questions: 15 min; Discussion: 5 min

Session	Plan
90 minutes	Before questions: 5 min; Brief: 10 min; Run 1: with drones: 20 min; Run 2: without drones: 15 min; Collect: 5 min; Compare and discuss: 25 min; After questions: 10 min
180 minutes	Before questions: 10 min; Brief and staff roles: 15 min; Run 1: with drones: 25 min; Run 2: without drones: 20 min; Break: 10 min; Run 3: syndicates: 30 min; Collect: 10 min; Seminar replay and debrief: 40 min; After questions: 10 min; Close: 10 min

Staff roles

commander
Set the posture before the run and the standing orders during it, weigh the supply trucks against the tanks as targets, and report how far the column has come against the time left.

intelligence
Track the enemy supply trucks, the jamming unit near the column and each Orlan flight over your lines, and report what the enemy can probably see of you.

fires
Watch which targets your two batteries engage and how many shells remain, and report any strike landing close to the city where civilians live.

droneOps
Manage the quadcopters, the R18 bombers and the single TB2, report losses to jamming and air defence, and say how much the rain is cutting flight time.

Opposing staff objective

Push from Hostomel and Bucha, and along the M07 from Borodianka, across the Irpin river into Kyiv’s north western districts before time runs out.

Decision points

- Before the first launch: the enemy column comes down the convoy road from the north toward Hostomel, with a second group on the M07 from Borodianka, so do you look first at the tanks leading it or the supply trucks at its rear, and which drone goes where?
- When the first enemy Orlan flies over your positions: your artillery may now be found, so do you set target priority to hit the enemy artillery first or keep your drones on the column?
- When the leading vehicles reach the Irpin river between Irpin and Kyiv: is this where you spend your R18 bombers and the TB2, or do you hold them for the approach to Kyiv’s north western districts?

Before and after questions

1. **In this historical scenario's logistics model, why can losing fuel trucks affect more than the vehicles directly struck?**

   A. Truck losses primarily reduce the column's local observation coverage
   B. Truck losses matter mainly through replacement vehicle purchase costs
   C. Loss of supply reduces fuel available to other vehicles throughout the modeled column
   D. Truck losses matter primarily because those vehicles lead attacks

2. **Which combination of obstacles does this simulation represent at the Irpin river?**

   A. Constructed new crossings while moving artillery units westward
   B. Retained crossings for later planned Ukrainian ground counterattacks
   C. Assigned crossings to volunteer reconnaissance and drone detachments
   D. Destroyed crossings and flooded nearby valley ground

3. **In the briefing, what did small Ukrainian units mainly use drones for?**

   A. Observing targets and supporting artillery fire
   B. Selecting targets separately from supporting weapon coordination
   C. Maintaining contact information through the initial observation alone
   D. Replacing artillery observation with recorded vehicle loss totals

4. **What information function does a reconnaissance drone provide to the artillery it supports?**

   A. Improved accuracy derived from the drone's own weapon payload
   B. Faster observation and transmission of target information
   C. Reduced observation requirements after the first confirmed target contact
   D. Improved shell supply derived from continuous aerial position reports

5. **In this simulation, which R18 equipment enables observation at night?**

   A. The ordinary camera gains equivalent visibility after dark
   B. Darkness itself improves identification with the ordinary camera
   C. Thermal cameras provided observation in the darkness
   D. Existing daylight contacts remain accurate without renewed observation

Discussion

- When did you first find the enemy supply trucks, and what could you have done to find them sooner?
- Compare your run with drones and a run without them: how far did the column get in each, and what did your artillery manage to hit with no drones spotting for it?

- Compare strict and standard rules of engagement in this model as enemy troops approach inhabited areas. What precautions and civilian-harm outcomes, including no recorded harm, appear in each review? Would you make the same choice again?
- The lesson says drones did not win this alone. How much of your result came from the mud, the few roads across the Irpin river and the enemy's dependence on its supply trucks, and how much from your drones?

Debrief rubric

Strong
Meets the objective or explains why it was not met; uses the published sources and run evidence, separates known facts from assumptions, compares both sides' losses and cost exchange, and evaluates precautions against civilian harm.

Adequate
Describes the objective and main decisions, identifies at least one source and model limitation, reports losses and harm, and gives a reasoned change for a second run.

Weak
Reports only victory or points, treats teaching settings as real performance, gives unsupported historical claims, or omits uncertainty and civilian harm.

Published readings

1. DroneXL: Aerorozvidka says drones halted the convoy
2. 19FortyFive: Meet Aerorozvidka
3. RUSI: Preliminary Lessons in Conventional Warfighting from Russia's Invasion of Ukraine: February–July 2022 (30 November 2022)

Complete source list

Wikipedia: Russian Kyiv convoy
DroneXL: Aerorozvidka says drones halted the convoy
19FortyFive: Meet Aerorozvidka
Wikipedia: Northern front of the Russian invasion of Ukraine
Wikipedia: Battle of Moshchun
Wikipedia: Demydiv, Kyiv Oblast
Wikipedia: Hostomel Airport (Antonov Airport)
RUSI: Preliminary Lessons in Conventional Warfighting from Russia's Invasion of Ukraine: February–July 2022 (30 November 2022)
Reuters: Russian military convoy north of Kyiv stretches for 40 miles, Maxar
The Guardian: The drone operators who halted Russian convoy headed for Kyiv
RUSI: Preliminary Lessons from Ukraine's Offensive Operations, 2022–23 (July 2024, PDF)